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THE

VETERINARY BULLETIN

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DISEASES CAUSED BY BACTERIA AND FUNGI

MURPHY, J. M. & STUART, O. M. (1955). **Teat canal length in the bovine and its relation to susceptibility to swab-induced infection with** *Streptococcus agalactiae*.—*Cornell Vet.* **45,** 112-122. **1853**

The authors devised a method for the measurement of the teat canal in cattle, based on the length of soft, vinyl plastic tubing which required to be passed through the canal before milk flowed. Under the conditions of the study the passage of the cannulas did not result in adventitious infection of the glands nor in any inflammatory disturbance as shown by the Whiteside test.

In an experiment with six cows it was found that infectibility with *Str. agalactiae* by the swab technique was not related to the length of the teat canal as determined by the plastic cannula method.—A.S.

MONTEVERDE, J. J. & GARBERS, G. V. (1954). Hallazgo de *Streptococcus equisimilis* en una grave enfermedad de potrillos. **[Isolation of** *Str. equisimilis* **from a disease of foals in Argentina.]**—*Rev. Vet. Milit., B. Aires.* **2,** 200-201. [Only abst. given.] [English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.* S. Paulo. April 3-10, 1954. Sect. A. pp. 10-11. Mimeographed.] **1854**

A non-lactose-fermenting strain of *Str. equisimilis* was isolated from joints and abscesses in foals in a severe outbreak of polyarthritis and septicaemia in a breeding farm; 26 out of 54 foals were affected and 13 died. Antibiotic and sulphonamide therapy seemed ineffective. Viability in culture media was low, and the strain did not survive in cultures dried *in vacuo* and stored at 6° to 10°C.

—H. E. HARBOUR.

SHETTY, K. S. (1953). **Bacterial flora of the upper respiratory tract of the dog with special reference to streptococci.** — *Indian vet. J.* **29,** 513-531. **1855**

An account of studies on 100 dogs in Edinburgh. Among haemolytic streptococci isolated the predominant groups were G, M, and C.

—R. N. MOHAN.

DENNY, F. W., JR. & THOMAS, L. (1953). **The demonstration of type specific streptococcal antibody by a haemagglutination technique employing tannic acid.**—*J. clin. Invest.* **32,** 1085-1093. [Authors' summary modified.] **1856**

M protein of group A streptococci was adsorbed to human group O erythrocytes previously exposed to small amounts of tannic acid, and these cells were specifically agglutinated by homologous rabbit anti-streptococcus sera and sera of some patients convalescent from streptococcal infection. The addition of g. pig complement to the haemagglutination test resulted in significant specific haemolysis when type 24 M protein and antiserum were used; little or no haemolysis occurred when other types of M protein and antisera were involved.

Haemagglutination was specifically inhibited by the addition of homologous M protein to the serum before the addition of the M protein-sensitized erythrocytes.

In a study of human sera the appearance of type-specific haemagglutinins was demonstrable during convalescence from streptococcal infection. However, non-specific haemagglutination was frequently encountered. This could be inhibited in some instances by incubating the serum with a heterologous M preparation before the addition of the treated erythrocytes. Specific agglutination, and the inhibition of non-specific agglutination, by heterologous M protein, were made more clear-cut by the use of normal rabbit serum in the diluting fluid.

REMPT, D. & V. D. MAAS, J. C. (1953). Microscopisch en cultureel onderzoek van runder-sputa in de provincie Noord-Holland. **[Results of microscopic and cultural examination of sputum from cattle for TB. in the province**

of North Holland.]—*Tijdschr. Diergeneesk.* **78,** 988-992. [English, French and German summaries.] **1857**

Using the solid medium described by Stonebrink, [*V.B.* **23,** 1800] visible growth occurred in cultures of sputum specimens from cattle after 14–21 days. Microscopic examination had revealed 1·2% positive specimens in 1949-50 as compared with 6·8% and 4·9% respectively in 1951-52 and 1952-53 using the above culture method.—C. A. VAN DORSSEN.

ARNEODO, A. (1954). Contributo allo studio della bacillemia tubercolare nei bovini. **[Tuberculous bacteraemia in cattle.]**—*Zooprofilassi.* **9,** 499-505. **1858**

Samples of heart blood from 16 tuberculous cattle were examined for tubercle bacilli, with positive results in 2 cases. These two were affected respectively with pulmonary TB. with large nodule formation, and acute miliary TB. —I. W. JENNINGS.

MÜLLER, K. (1954). Untersuchungen über das Vorkommen von Tuberkelbakterien in makroskopisch unveränderten Nieren tuberkulöser Rinder. **[Incidence of tubercle bacilli in macroscopically normal kidneys of tuberculous cattle.]**—*Inaug. Diss., Munich.* pp. 25. [Mimeographed.] **1859**

Tubercle bacilli were found to be present in 5 out of 53 macroscopically normal kidneys from tuberculous cattle.—W. G. SILLER.

BELLER, K. (1953). Zur Klärung zweifelhafter Tuberkulinreaktionen auf serologischem Wege. **[The complement-fixation test in the evaluation of doubtful tuberculin reactions.]** —*Rindertuberkulose.* **2,** 152-159. **1860**

B. discussed the suggestion that the repeated tuberculin testing of an animal which had reacted to the test could provoke a rapid spread of the disease in the animal. In view of this possibility, he advocated the use of the complement-fixation test in reactors, and also to clarify doubtful reactions to the tuberculin test.—W. G. SILLER.

TARSHIS, M. S., PARKER, M. V. & DUNHAM, W. B. (1954). **Blood mediums for cultivation of *Mycobacterium tuberculosis*. VIII. Results with different samples of agar with and without penicillin.**—*Acta tuberc. scand.* **30,** 37-42. [In English. Authors' summary modified.] **1861**

No significant effects were produced on either the rate or degree of growth or on the colonial morphology of two strains of virulent human type tubercle bacilli when grown on several modified human blood media prepared with six different samples of plain agar with and without penicillin.

CRUICKSHANK, C. N. D. (1954). **The effect of tuberculin on the respiratory rate of skin from sensitised guinea-pigs.**—*Brit. J. exp. Path.* **35,** 609-613. **1862**

No alteration could be detected in the oxygen uptake of skin from normal g. pigs, nor in that of skin from g. pigs that had been sensitized to the tubercle bacillus, following the addition of tuberculin to the medium in which the skin was suspended.—F.E.W.

LONG, D. A. (1954). **Influence of cysteinamine on tuberculin sensitivity in guinea-pigs.**— *Brit. J. Pharmacol.* **9,** 118-120. [Author's summary modified.] **1863**

Using the response to the i/d tuberculin test as a measure of allergic hypersensitivity in albino g. pigs injected with B.C.G. it was found that a single i/p inj. of cysteinamine, (1) given at the same time as the tuberculin, prevented desensitization by cortisone and (2), given 6 hours before the tuberculin, depressed sensitivity to tuberculin both in the presence and in the absence of cortisone; that desensitization produced by a single i/p inj. of cysteinamine was prevented by reduced glutathione, and that it did not occur in ascorbic acid deficient g. pigs.

L. concluded that in the g. pig cysteinamine has both an immediate action in which it behaves like an -SH compound, followed by a more prolonged action, in which it produces effects analogous to those of cortisone. He suggested that the effects may be due to cysteinamine or one of its breakdown products behaving like an anti-metabolite.

SELBIE, F. R. & O'GRADY, F. (1954). **A measurable tuberculous lesion in the thigh of the mouse.** — *Brit. J. exp. Path.* **35,** 556-565. [Authors' summary modified.] **1864**

The authors described the production and development of a measurable tuberculous lesion in the thigh of the mouse following deep i/m inoculation with 0·1 ml. of H37Rv strain of the tubercle bacillus. The lesion developed regularly for about 40 days and then resolved spontaneously by sinus formation, leaving the limb, after about 100 days, apparently normal. There was no apparent toxic reaction and no systemic spread of the disease beyond the regional lymph nodes.

Re-inoculation of the other thigh in mice bearing this lesion gave rise to an exaggerated response, maximal at 24–48 hours, and subsequently declining rapidly, *i.e.*, having the characteristics of a hypersensitive reaction of the tuberculin type. This hypersensitive state

was not associated with cutaneous hypersensitivity either to Old Tuberculin or to tubercle bacilli.

This hypersensitive response, which could be elicited as early as the 6th day of the disease, had no effect on the subsequent course of the second lesion. The authors discussed the significance of this in terms of the possible role of hypersensitivity in this tuberculous lesion.

Mice re-inoculated in the third week of the original infection exhibited, besides this hypersensitive response, an immune reaction leading to less rapid progession and reduced peak size of the second lesion as compared with controls. Nevertheless the immune and control lesions began to resolve at the same time and declined within the same period.

The authors suggested that hypersensitivity and immunity are therefore separate phenomena, that hypersensitivity exists from a very early stage, and that immunity appears, in the mouse, some time during the third week of infection. Immunity does not lead to an earlier or more rapid resolution of the lesion.

GRUMBACH, A. (1952). Der erbliche Einfluss auf Überlebensdauer, Organlokalisation und Manifestation im Tuberkuloseversuch an C_3H.-Mäusen. [**Hereditary influences on survival and on localisation and nature of lesions in C_3H mice experimentally infected with TB.**]—*Schweiz. Z. allg. Path.* **15,** 715-721. [English and French summaries. English summary modified.] **1865**

Of 30 male mice of strain C_3H that were inoculated intravenously with virulent tubercle bacilli, strain $H_{37}Rv$, four died during the first three days; the remaining 26 died between the second and the twelfth week after infection. There was no correlation between the survival time, the localization of infection and the extent of the necrotic lesions; both the localization and the extent of these lesions were very uniform in character. The combined weights of the heart and lungs and the weight of the spleen, however, varied considerably. A characteristic feature of the C_3H strain was a 100% involvement of the mycocardium, a localization which G. had found to be extremely rare in the strains of white mice inoculated with $H_{37}Rv$ in his laboratory.

LINZ, R. (1953). Sur le mécanisme de l'action de la streptomycine. III. Le cas de *Mycobacterium tuberculosis*. [**Mode of action of streptomycin on *M. tuberculosis*.**] — *Ann. Inst. Pasteur.* **85,** 295-307. **1866**

Experimental work is detailed showing that more streptomycin becomes fixed on the bacterial cells of *M. tuberculosis* than on those of *Pseudomonas pyocyanea, Staph. pyogenes* and *Bact. coli*. Such fixation increases with contact time and is independent of temperature. Bacteriostatic action, at first reversible, becomes irreversible after 4 days' contact. In the early stages growth increases and later is inhibited and finally lysis occurs. The presence of streptomycin intensifies phagocytosis *in vitro* of B.C.G. by g. pig leucocytes.—G. V. LAUGIER.

MCKINSTRY, R. N. & BLAMPIED, T. LE Q. (1955). **Radiological examination of human contacts of the tuberculin positive cow.**—*Tubercle, Lond.* **36,** 16-17. **1867**

In Jersey where the herds are free from bovine type TB. but not immune, there have been 3 small outbreaks in the last 6 years, but tuberculin positive reactors have been encountered on several occasions which, when slaughtered, showed no *post-mortem* evidence of TB. The authors reported 6 instances in which positive reactors were in contact with a case of open human pulmonary TB. After removal of the source of infection, 42% of these reactors became negative within a year.—A. ACKROYD.

GERSTL, B., KIRSH, D., DAVIS, W. E., JR. & BARBIERI, M. (1954). **Absence of circulating antibodies in patients with pulmonary tuberculosis.**—*Science.* **120,** 853-854. **1868**

Whole tuberculous human sera negative in the complement-fixation and haemagglutination tests yielded fractions which showed the presence of antibody. The ethanol fractionation technique apparently eliminated a suppressing factor or accomplished dissociation of an antigen-antibody complex.—A. B. PATERSON.

IMERSLUND, O. & JONSEN, T. (1954). **Lupus vulgaris and multiple bone lesions caused by B.C.G.** — *Acta tuberc. scand.* **30,** 116-123. [In English. Authors' summary modified.] **1869**

In a child that had been inoculated with B.C.G. at the age of 4 weeks, lupus vulgaris developed at the site of inoculation following an attack of measles 6 months later, and at the age of about 2 years several bone lesions developed. From both the skin and the bone lesions bacilli were cultivated which conformed with the criteria of the B.C.G. strain of the bacillus. The authors suggested that the essential cause of the haematogenous spread of the organism was a transient diminution of resistance during the attack of measles.

MACGREGOR, A. G. & SOMNER, A. R. (1954). **The anti-thyroid action of para-aminosalicylic acid.**—*Lancet.* **267,** 931-936. **1870**

Of 83 human beings with TB. treated with *p*-aminosalicylic acid (PAS) for 5 months or more, 20 developed goitre, often with hypothyroidism. The authors found that thyroxine, given to patients undergoing PAS treatment, prevented ill-effects on the thyroid gland. —A.S.

HAUDUROY, P. & LORÉTAN, R. M. (1953). Les réactions cyto-chimiques. Méthodes nouvelles d'étude de la virulence des mycobactéries. **[Cytochemical methods in estimation of the virulence of mycobacteria.]** — *Rev. Path. gén.* **53,** 169-177. **1871**

By combined use of the dye reduction tests described by Dubos & Middlebrook [*V.B.* **22,** 2718] and others, the authors suggested that mycobacteria may be assigned to one of four groups: virulent or avirulent, virulent which have become attenuated or avirulent, permanently avirulent (*i.e.*, saprophytic), or a mixture of virulent and avirulent strains. The conclusions were based on the examination of a collection of 100 mycobacterial strains. —A. B. PATERSON.

SMITH, H. WILLIAMS. (1954). **The isolation of mycobacteria from the mesenteric lymph-nodes of domestic animals.**—*J. Path. Bact.* **68,** 367-372. [Author's summary modified.] **1872**

The mesenteric lymph-nodes of 300 cattle, 200 sheep, 100 pigs and 100 horses slaughtered in the Huntingdon - Cambridge area were examined culturally for the presence of acid-fast bacilli.

Mycobacterium johnei was isolated from 51 of the cattle, one of the sheep and one of the horses; avian type tubercle bacilli from 5 cattle, 10 sheep and 7 pigs; and bovine type tubercle bacilli from one of the cattle.

M. johnei was not isolated from any of 100 cattle slaughtered in Ireland, a country where clinical Johne's disease is rare.

A modification of Dubos's solid medium (Smith, 1953) was more satisfactory than a similar modification of Dubos's liquid medium or Taylor's (1950) medium for isolating *M. johnei* from mesenteric lymph-nodes.

SMITH, H. WILLIAMS. (1955). **Sources of the *phlei* growth factor for *Mycobacterium johnei*.** [Correspondence.]—*Nature, Lond.* **175,** 40-41. **1873**

Extracts prepared from rumen and intestinal contents of cattle and sheep failed to replace the *M. phlei* growth factor in cultures of a strain of *M. johnei* dependent on that factor. Similar results were obtained with extracts of intestinal contents of sheep, pigs, horses, rabbits and also from cows that had died from Johne's disease. Extracts of grass-meal, fresh grass, milk and several common food-stuffs were also inactive and it seems likely that *M. johnei in vivo* is independent of external sources of growth factor.—A. B. PATERSON.

RYFF, J. F. & BROWNE, J. (1954). *Corynebacterium pyogenes*—**a cultural and serological study.**—*Amer. J. vet. Res.* **15,** 617-621. [Authors' summary modified.] **1874**

After adaptation to unenriched media, *C. pyogenes* retained its typical effect on litmus milk but lost its ability to liquefy Löffler's medium and, to some extent, its haemolytic properties and ability to liquefy gelatin. Such adaptation enhanced the property of carbohydrate fermentation, and out of 57 strains 50 produced acid from aesculin, dextrin, glucose, galactose, lactose, laevulose, maltose, salicin, starch, sucrose, and trehalose; at least half fermented arabinose, glycerol, mannitol, raffinose, sorbitol, and xylose. Dulcitol alone was not broken down by any of the strains. Cross agglutination and agglutinin absorption carried out with antisera prepared against the somatic component of 10 strains indicated a consistent relationship within the species. Cross agglutination employing ten antisera prepared against the capsular fraction indicated an even closer relationship between strains.

GALLO, G. G. (1954). Cuatro casos de metástasis por linfangitis ulcerosa. **[Metastasis in ulcerative lymphangitis in four horses.]**— *Rev. Vet. Milit., B. Aires.* **2,** 258-266. **1875**

G. described 4 cases of ulcerative lymphangitis in which the infection spread by the lymphatic system and blood stream, to involve mainly the liver and kidneys. *C. ovis* was isolated from the liver and kidneys of two of the horses: there appeared to be secondary streptococcal and staphylococcal infection in the organs of the remaining two. He suggested that when metastasis takes place, death is inevitable.— I. W. JENNINGS.

QUEVEDO, J. M., JR., RODRIGUEZ LOUSTAU, J. A., RIZZO, H. R., METTLER, E. A. J. & JUAREZ, F. S. (1954). Vacunación contra la adenitis caseosa de los ovinos de la Patagonia y distintos ensayos complementarios de laboratorio sobre diversos aspectos de la infección a Preisz-Nocard. **[Vaccination of sheep in Patagonia against caseous lymphadenitis, and other aspects of *Corynebacterium ovis* infection.]** — *Rev. Vet. Milit., B. Aires.* **2,** 198-199. [Only abst. given.] [English summary in *Summ. of Communications. IInd*

Pan-Amer. Congr. vet, Med., S. Paulo, April 3 - 10, 1954. Sect. A. p. 6. Mimeographed.] **1876**

C. ovis aluminium hydroxide or potassium alum vaccines were tested in the field in Patagonia. Good results were reported and the authors claimed that in some vaccinated flocks there was a general improvement in condition, with better wool production.—H. E. HARBOUR.

LAMIKHOV, K. F. (1954). **[A disease of sheep resembling caseous lymphadenitis.]**—*Veterinariya, Moscow.* **31,** No. 10. pp. 35-39. [In Russian.] **1877**

An account of a disease in sheep resembling caseous lymphadenitis.—A. MAYR-HARTING.

MURASE, N., JURAKU, A., TIEN, J. & SHIMIZU, F. (1952). **[Epizootiological observations on glanders of horses in Manchuria. I. Studies on the seasonal changes of the rate of infection.]**—*Jap. J. vet. Sci.* **14,** 157-174. [In Japanese. English summary.] **1878**

MURASE, N., JURAKU, A., TIEN, J., SHIMIZU, F. & ASHIZAWA, H. (1952). **[Epizootiological observations on glanders of horses in Manchuria. II. Studies on the relation between immunological reactions and pathological observations.]**—*Ibid.* 175-188. [In Japanese. English summary.] **1879**

MURASE, N., JURAKU, A., TIEN, J., SHIMIZU, F. & HANG, J. (1953). **[Epizootiological observations on glanders in horses in Manchuria. III. Investigations of nasal glanders, newly infected horses and colts born of the infected mares.]**—*Ibid.* **15,** 147-153. [In Japanese. English summary pp. 154-155.] **1880**

MURASE, N., JURAKU, A., TIEN, J., SHIMIZU, F., HANG, J. & ASHIZAWA, H. (1953). **[Epizootiological observations on glanders in horses in Manchuria. IV. Studies on the diagnosis and control.]**—*Ibid.* 157-171. [In Japanese. English summary pp. 172-174.] **1881**

I. An average of 15% of 1,000 horses in Manchuria reacted to both the intradermo-palpebral mallein test and the complement fixation test for glanders. The horses were tested every 2 months during a period of 16 months. The highest incidence of reactors occurred during March-July, and in geldings and older horses.

II. The authors compared the reactions to the mallein and c.f. tests at different stages of glanders. Those horses which reacted to both tests had active circumscribed lesions, from which the causal organism was isolated; in general symptoms were slight. Those which reacted to the mallein test alone tended to have chronic infection.

III. Nasal discharge due to glanders was present in 29 out of the 1,000 horses examined in Manchuria. Sixteen pregnant mares which reacted to the mallein and c.f. tests gave birth to healthy foals which, at the age of 2–3 months, reacted to the c.f. test but not to the mallein test. The foals remained free from infection during the 8-month period of observation.

IV. The growth of *Pf. mallei* was enhanced by the addition of 0·05–0·1% defibrinated horse blood to the culture medium. Discussing the diagnosis of glanders, the authors concluded that, for the purposes of an epidemiological survey, the c.f. test should be used in conjunction with the mallein test.—KOGI SAITO.

ANON. (1954). **[Melioidosis in Malaya.]**—*Malay. agric. J.* **37,** 30. **1882**

Five fresh cases of melioidosis were reported amongst goats at Serdang.

—A. ACKROYD.

GODGLÜCK, G. & WELLMANN, G. (1953). Rotlaufbakterien in der Haut und im Blut bei experimentell mit Rotlauf infizierten Schweinen. **[Occurrence of *Erysipelothrix rhusiopathiae* in the skin and blood of artificially infected pigs.]**—*Dtsch. tierärztl. Wschr.* **60,** 537-541. **1883**

The authors examined histologically, at various stages of development, (a) a reaction-free scarification site, (b) local skin lesions at the site of inoculation, (c) "diamond" skin lesions and (d) erythematous skin lesions, in pigs that had been inoculated percutaneously with culture of *E. rhusiopathiae*, and concurrently examined bacteriologically the blood of these animals. Only in those with the (d) type of lesion could the organism be isolated from the blood; it was present, but less numerous, in the connective tissue; local capillary stasis occurred. In those with type (b) and (c) lesions the organism was abundantly present in the subcutaneous connective tissue, but not in those of type (a).—R. B. HOLCOMBE.

GOERTTLER, V. & RICHTER, W. (1954). Untersuchungen über die Todesverluste bei Impfrotlauf in Thüringen in den Jahren 1948 bis 1951. **[Losses following immunization of pigs against swine erysipelas in Thuringia during 1948-51.]**—*Mh. VetMed.* **9,** 25-34. **1884**

An account of a statistical examination of the losses in pigs associated with immunization against *E. rhusiopathiae* infection in Thuringia in 1948-51, in conjunction with a study of

meteorological and atmospheric conditions during this period, of geographical and geological factors and of factors such as nutrition and husbandry etc. The authors concluded that changes in weather conditions have an adverse influence on the resistance of vaccinated animals especially when resistance is already lowered by malnutrition, parasitic infestation and the effects of poor husbandry.—H. BEHRENS.

ROLLE, M. & KALICH, J. (1954). Zur Frage des Impfrotlaufes. **[Swine erysipelas following immunization with formolized vaccine.]**—*Tierärztl. Umsch.* **9,** 48-49. **1885**

Mice dosed with a virulent culture of *E. rhusiopathiae* developed the septicaemic form of the infection when they were injected subcutaneously with a culture, killed by 0·3% formol, of certain strains of the organism, which appeared to be capable of "activating" the virulent organisms in the lumen of the intestine. The authors suggested that this might explain the occasional occurrence of *E. rhusiopathiae* infection in pigs after immunization with formolized vaccine.—H. BEHRENS.

COOPER, M. S., PERSONEUS, G., HARVEY, M. J. & PERCIVAL, R. C. (1954). **Laboratory studies on swine erysipelas. I. Immunization against swine erysipelas and susceptibility of swine to challenge.**—*Amer. J. vet. Res.* **15,** 594-598. [Authors' summary modified.] **1886**

In two experiments, a total of 31 pigs were immunized with a single 5 ml. dose of an adsorbed *Erysipelothrix rhusiopathiae* vaccine, administered subcutaneously, and after 3 weeks these animals and 16 unvaccinated controls were challenged with virulent culture by scarification. The controls showed a febrile response together with severe swelling and erythema at the scarification sites. The vaccinated pigs showed only a transient and minimal local response and no temperature rise.

Five pigs, which had been vaccinated with swine fever crystal violet vaccine and subsequently challenged with virulent swine fever virus, showed only a febrile reaction to an i/m injection of *E. rhusiopathiae*. Five swine fever-susceptible controls showed no significant difference from the pigs immune to swine fever in their reaction to *E. rhusiopathiae*.

The daily administration of cortisone before and after experimental swine erysipelas infection apparently caused the death of one out of 4 pigs infected by scarificaton. Four pigs treated wth cortisone, but infected by the intramuscular route, survived. The dosing appeared to change the febrile response.

BERGMANN, J. & SCHENKER, E. (1954). Experimentelle Untersuchungen mit gereinigten und ungereinigten Rotlauf-Adsorbatimpfstoffen. **[Comparison of purified and unpurified adsorbate vaccine against swine erysipelas.]**—*Schweiz. Arch. Tierheilk.* **96,** 127-142. [English, French and Italian summaries.] **1887**

An aluminium hydroxide adsorbate vaccine was prepared from non-allergenic strains of *E. rhusiopathiae* on protein-poor media. This contained no "ballast" antigen and was considered not to stress the animal's antibody production unnecessarily. In trials on mice and pigs, however, although antibodies were more rapidly produced, the immunizing powers of this vaccine were inferior to those of vaccine prepared by conventional methods.

—W. G. SILLER.

JONES, E. W. (1954). **Encephalitis due to *Erysipelothrix monocytogenes* (circling disease) in the ox. A brief review and report of two cases observed in this country.**—*Vet. Rec.* **66,** 296-298. **1888**

An account of two cases of circling disease in a herd of 40 Guernsey cattle in Great Britain, in a heifer in the 6th week of its second pregnancy and a 9-month-old heifer calf. P.M. examination revealed no gross lesions of the brain in either case. In both cases, lesions typical of *E. monocytogenes* infection were demonstrable histologically in the mid-brain and the organism was isolated from these lesions in the latter case. The organism was found to be more sensitive to penicillin than to streptomycin or chloramphenicol.—F.E.W.

VENDROV, A. A. (1954). **[*Erysipelothrix* (*Listeria*) *monocytogenes* infection in swine.]**—*Veterinariya, Moscow.* **31,** No. 8, pp. 32-33. [In Russian.] **1889**

On two state farms, acute and subacute forms of *E. monocytogenes* infection were observed in pigs. The acute form was almost entirely confined to animals less than a year old. V. gave a clinical account of the condition.

—A. MAYR-HARTING.

BAIN, R. V. S. (1954). **Vaccination against haemorrhagic septicaemia of bovines.** [Correspondence.] — *Nature, Lond.* **173,** 584-585. **1890**

Vaccination with conventional products is not effective against haemorrhagic septicaemia of cattle in Asia. In a series of small-scale experiments adjuvant 'phase I' vaccine (obtained from *Past. septica* type I phase I cultures) protected 36 of 39 cattle and buffaloes

in Burma and Siam, against 25,000–200,000 lethal doses injected s/c 4–5 weeks after inoculation.—W. R. BETT.

BORGMAN, R. F. & WILSON, C. E. (1955). **Pasteurellosis and enzootic pneumonia in goats.** — *J. Amer. vet. med. Ass.* **126,** 198-204. [Abst. from authors' summary.] **1891**

In several outbreaks of pasteurella infection in a laboratory herd of goats in Maryland, the clinical signs and the lesions found P.M. were comparable to those seen in sheep. Penicillin appeared to be the best therapeutic agent in these outbreaks.

In one outbreak that was thoroughly investigated, one strain of *Past. septica* was isolated consistently which differed in its cultural and serological characters from serological types I, II and III. The prophylactic use of a commercial antiserum containing antibodies for these three types did not reduce the incidence of infection in the goats.

In mouse-protection tests neither this antiserum nor another commercial antiserum containing antibodies for several strains identified by the zoological host method of classification, afforded any immunity against challenge with the isolated strain. No protection was demonstrable in mice treated with a commercial killed culture vaccine containing antigens for types I, II and III and a commercial aggressin prepared in horses by the use of the buffalo strain, but considerable protection was shown in mice treated with killed culture vaccine prepared from the strain isolated from the outbreaks.

RYCKMAN, R. E., AMES, C. T., LINDT, C. C. & LEE, R. D. (1954). **Control of plague vectors on the California ground squirrel by burrow dusting with insecticides and the seasonal incidence of fleas present.**—*J. econ. Ent.* **47,** 604-607. **1892**

The insecticides heptachlor 2·5%, D.D.T. 5%, dieldrin 2%, and aldrin 2·5% were blown into the burrows of "ground squirrels" (*Citellus beechyi*) at the rate of 30 g. of each per burrow. The number of fleas was reduced markedly in response to all except D.D.T. and it remained low for 9 months.—JAS. G. O'SULLIVAN.

GUALANDI, G. (1953). La terramicina nella lotta contro il colera aviare. **[Control of fowl cholera by addition of terramycin to the food.]** —*Arch. Vet. Ital.* **4,** 539-543. [English, French, German and Spanish summaries.] **1893**

In lab. tests, confirmed by field trials, it was found that after fowls had been given terramycin in the mash, 0·22%, for 24 hours, they were resistant to infection *per os* with 2 ml. of a 2% suspension in saline of visceral material from fowls that had died from *Pasteurella* infection, whereas controls not so treated succumbed to the infection. When after 20 days 10 of the treated fowls that had resisted the infection were put on a normal diet and again challenged, 8 of them died from the infection. —I. MARTINI.

BORNSTEIN, S. & SAMBERG, Y. (1954). **The therapeutic effect of streptomycin on infectious coryza of chickens caused by *Hemophilus gallinarum*. II. Blood serum levels of streptomycin in chickens. II. Isolation and culture of *Hemophilus gallinarum*, and some of its biochemical reactions.**—*Amer. J. vet. Res.* **15,** 607-611 & 612-616. **1894**

I. The authors described a method for determining streptomycin in the serum of fowls, and gave the serum level response of adult hens to i/m injection of 25,000–200,000 units. In comparison with other species, fowls required about eight times the dosage in order to reach equivalent serum conc. of streptomycin.

II. The authors reviewed the literature on the cultivation of *Haemophilus gallinarum* and described a procedure suitable for use in the field. Preliminary results indicated that the organism grew well in the yolk sacs of 7-day chick embryos. An examination of the biochemical properties of strains of *Haemophilus* isolated from infectious coryza of fowls confirmed that *H. gallinarum* was associated with this disease in Israel.—R.M.

ROWLEY, D. (1954). **The virulence of strains of *Bacterium coli* for mice.**—*Brit. J. exp. Path.* **35,** 528-538. [Author's summary modified.] **1895**

Of 20 strains of *Bact. coli*, tested for mouse virulence by intraperitoneal injection together with 1·75% hog gastric mucin, 6 were virulent in comparison to the remainder. This virulence was not due to the possession of a heat-stable toxin since all the strains had approx. the same toxicity when killed.

In vivo studies revealed that virulence is a reflection of the capacity to continue multiplying in the peritoneum from a small inoculum; this capacity was correlated with greater resistance towards the *in vivo* bactericidal powers of complement-containing sera. The authors suggested that this resistance to complement is an important determinant of mouse virulence in *Bact. coli*.

ARNOLD, R. M., GUILBRIDE, P. D. L. & GLOVER R. C. (1955). **An outbreak of diarrhoea amongst grazing steers attributed to *Salmonella manhattan* infection.**—*Vet. Rec.* **67,** 78-80. **1896**

In a severe outbreak of treatment-resistant diarrhoea in a herd of 72 grazing steers in Jamaica, *S. manhattan* was eventually isolated from the bowel contents and faeces of two which died and from one which recovered. In all 19 animals were affected and 10 died. The authors stated that the isolation of this organism from cattle had not previously been reported. —A. ACKROYD.

I. UTOJO, R. P. (1954). **Additional notes on the findings of *Salmonella* types from animals as carriers.**—*Hemera zoa.* **61,** 91-96. [In English. French, German and Indonesian summaries.] **1897**

II. ERBER, M. & UTOJO, R. P. (1954). **A new salmonella type isolated from a buffalo.**—*Ibid.* 171-174. [In English. German and Indonesian summaries.] **1898**

I. The inclusion of goats in the animals whose mesenteric lymph nodes are subjected to bacteriological examination when they are killed for food in Indonesia has resulted in the isolation from them of *S. paratyphi B* var. *java* (antigenic formula IV:b:—) and *S. dublin* (IX:gp:—), whilst from buffaloes, *S. stanley, S. hvittingfoss* (XVI:b:en x?) and a new salmonella type having the antigenic formula XXX:Z_4Z_{24} have recently been isolated.

II. The authors described a new type of salmonella organism having the antigenic structure XXX:Z_4Z_{24}, isolated during routine bacteriological examinations, from an apparently normal mesenteric lymph node of a buffalo killed for food. They proposed to name it *S. bodjonegoro.*—A. ACKROYD.

UTOJO, R. P. (1953). **Buffaloes, cows and hogs in Indonesia as salmonella-carriers.**—*Hemera zoa.* **60,** 316-330. [In English. Indonesian, French and German summaries.] **1899**

The mesenteric lymph nodes of buffaloes, cows and pigs slaughtered for food in Indonesia were examined for species of salmonella. The author listed the species isolated from a total of 16 buffaloes and 26 pigs during 1953. —W. S. MARSHALL.

CLARENBURG, A., TEUNISSEN, G. H. B. & VAN DER VLERK, J. (1954). ***Salmonella israel* in a dog.**—*Leeuwenhoek ned. Tijdschr.* **20,** 415-416. [In English.] **1900**

S. israel, a new species which was originally isolated from human beings, was recovered from the faeces of a dog with persistent diarrhoea.—R.M.

LANNEK, N. (1954). Behandling av paratyfus hos svin med nitrofurazon. **[Nitrofurazone in treatment of salmonellosis in pigs.]**—*Nord. VetMed.* **6,** 687-692. [In Swedish. English and German summaries.] **1901**

An account of clinical field trials during an outbreak of *S. cholerae-suis* infection among 200 store pigs about 8 weeks old. Nitrofurazone was administered in the food at a dosage rate of 0·1 g. twice daily; 40 pigs were left untreated as controls. Of the latter, 16 became infected whereas the incidence of infection ceased among the treated pigs. The infected controls were treated as soon as symptoms appeared with 0·5–0·6 g. daily for 3–8 days and recovered, but only slowly regained their lost condition.—I. MARTINI.

BOYD, J. S. K. (1954). **The type-A phages of *Salmonella typhi-murium*: two new types.**—*J. Path. Bact.* **68,** 311-314. [Author's summary modified.] **1902**

B. described two new type-A phages isolated from *S. typhi-murium.* He summarized the more important characters of all five type-A phages.

GORDON, R. F. & TUCKER, J. (1955). **The treatment of chronic carriers of *Salmonella pullorum* with furazolidone.**—*Vet. Rec.* **67,** 116-118. **1903**

The authors reported that *S. pullorum* infection was apparently eliminated from carrier hens that were given 0·04% of furazolidone in the food for 10 days. The birds also became negative to the blood agglutination test. They discussed the practical applications of these findings.—E. A. GIBSON.

JOSLAND, S. W. (1954). **Additional salmonella types in New Zealand.**—*N. Z. med. J.* **53,** 486-488. [Author's summary modified.] **1904**

J. recorded the isolation of *S. saint-paul, S. pullorum,* and *S. senftenberg* from material of human origin in New Zealand.

STEINIGER, F. (1954). Aus der Freilandbiologie der Salmonellen. **[Salmonella in sea water.]**—*Dtsch. med. Wschr.* **79,** 1118-1120. **1905**

Data are given of findings of salmonella organisms in sea water on the coast of the West-German Republic. Incidence of salmonella averaged about 10–20 organisms per litre of sea water, but this figure varied with the protein content of the water and 10–100 organisms/ml. were not unusual in places where abattoir waste was drained into the sea. Contamina-

tion with salmonella depended also on the flow of the water and on tidal and other currents.

The adverse effect of tidal currents on the growth of other organisms which multiply rapidly in stagnant water and compete with salmonella for food, or even feed on salmonella, is given as the probable reason why salmonella are rarely present in stagnant water.

Accidental swallowing of sea water containing salmonella apparently did not harm human beings even if contamination was up to 100 organisms per ml.

In a small outbreak of enteritis in cattle caused by unspecified salmonella in the Elbe estuary, the source of the infection was traced to pastures which had been flooded.

Gulls and other aquatic birds which during winter very often live entirely on floating matter in harbours and bays are an important factor in the spread of salmonellosis. Salmonella was isolated from sick and dead birds, from bird faeces and egg shells [*V.B.* **24, 3437**]. Many aquatic birds die from salmonellosis and permanent excreters are very frequent. Embryo mortality resulting from infected egg shells is high. Incidence of *S. paratyphi B, S. panama, S. typhi, S. typhi-murium, S. bovis morbificans, S. enteritidis* and *S. thompson* in various species of gulls, wild ducks, geese, auks, herons and others are given in a table. Another table gives the incidence of various salmonella types in water, and in human beings, birds and rodents in that particular area.—E.G.

Pilz, W. (1954). Beitrag zu den biologischen Grundlagen einer wirksamen Schutzimpfung gegen die Brucella Bang-Infektion der Rinder. **[Biological basis of effective vaccination against *Br. abortus* infection in cattle.]** —*Vet.-med. Nachr. Bayer-Meister Lucius* No. 3, 147-152. [Summaries in Suppl. No. 3/1954. English summary: pp. 5-8; French summary: pp. 14-17; Spanish summary: pp. 24-26.] **1906**

Br. abortus Strain 19 vaccine was compared with Strain "Langenhagen 11" and a proprietary vaccine prepared from the culture grown on bile medium and it was found that Strain 19 was the more efficient vaccine.

—W. G. Siller.

Verwey, W. F., Harrington, N. H. & Matt, C. (1950). **Preparation and properties of *Brucella abortus* vaccine (Strain 19) desiccated by lyophilization.**—*Proc. IIIrd Inter-Amer. Congr. Brucellosis*, Washington, 1950. pp. 209-215. [Spanish summary.] **1907**

Strain 19 in skim milk—phosphate buffer solution is shell frozen in vials at 70°C., desiccated *in vacuo* and sealed. Desiccation is the most critical step and the percentage survival of the organism is greatly influenced by technique. Stability of the final product is reduced if moisture accumulates during storage. Rubber capped vials were found to be satisfactory for distribution, although the use of rubber caps permitted rather more moisture to accumulate than when all-glass vials were used.

—C. C. Bannatyne.

Eckell, O. A., Vagni, O., Anaya, J. S. & Valotta, J. R. (1953). Contribución al catastro brucelósico equino en el país (2·615 pruebas de serodiagnóstico por el método de la placa de Huddleson). **[Brucellosis in horses.]**—*Rev. Vet. milit., B. Aires.* **1**, 106-118. **1908**

Samples of blood serum from 2,615 horses were subjected to the rapid agglutination test for brucellosis. The results bore no relation to the clinical state of the animals, since clinically healthy horses often reacted in high titres, and animals with fistulas, hygromas and other lesions often gave a negative reaction. Consistently high titres were found in horses living in contact with infected cattle.

—I. W. Jennings.

Driver, F. C. & Roepke, M. H. (1950). **Field studies on the diagnosis of animal brucellosis with special emphasis on the ring test.**—*Proc. IIIrd Inter-Amer. Congr. Brucellosis*, Washington, 1950. pp. 133-144. [Spanish summary.] **1909**

Experience in Minnesota indicates that the milk ring test carried out on bulk herd samples at the milk collecting centre is a useful screening test in detecting infected herds. False positives were mainly due to the use of samples collected from the weighing tank in which small quantities of infected milk from the previous herd had been left. Negative results in known infected herds were mostly associated with the infected individuals being dry at the time of sampling. The blood agglutination test must be used in conjunction with the ring test.

—C. C. Bannatyne.

Cedro, V. C. F. (1952). Importancia de la fijación del complemento en la brucelosis animal. **[Complement-fixation tests in brucellosis in animals.]**—*Rev. Med. vet., B. Aires.* **34**, 203-218. [English and French summaries.] **1910**

An article advocating the use of the c.f. test for the diagnosis of brucella infection.

—I. W. Jennings.

PRITULIN, P. I. (1954). [*Dermacentor nuttalli* **and** *Hyalomma marginatum* **as brucella vectors.**]—*Veterinariya, Moscow.* **31,** No. 7, pp. 31-33. [In Russian.] **1911**

Brucella infection occurred in cattle grazing land heavily infested with *D. nuttalli* and *H. marginatum*. P. suspected that these ticks might be vectors of the infection as other sources had been excluded. He collected 120 *D. nuttalli* and 30 *H. marginatum* in various stages of engorgement, from 4 cows which were reactors in high titre to the c.f. test for brucellosis. Healthy g. pigs which the ticks were allowed to infest contracted the infection and further healthy g. pigs were infected with material from these animals. Larval ticks from the cages of the former g. pigs appeared to be free from the infection.—F. A. ABBEY.

MARR, A. G. & WILSON, J. B. (1950). **The carbon dioxide requirements of** *Brucella abortus*. — *Proc. IIIrd Inter-Amer. Congr. Brucellosis*, Washington, 1950. pp. 151-156. [Spanish summary.] **1912**

In stimulating growth of *Br. abortus*, CO_2 probably acts specifically and not by incidentally lowering O_2 pressure. Spontaneous mutation to non-CO_2-sensitivity occurs generally in a few cells of a large inoculum incubated in air. Such mutant strains are stable.—C. C. BANNATYNE.

BENDTSEN, H., CHRISTIANSEN, M. & THOMSEN, A. (1954). *Brucella* **enzootics in swine herds in Denmark—presumably with hare as source of infection.**—*Nord. VetMed.* **6,** 11-21. [In English. German and Danish summaries.] **1913**

An account of three outbreaks of *Br. suis* infection affecting 240 herds of pigs on the mainland of Denmark in 1929-32, 1940 and 1951 respectively. The authors stated that from 1910 to 1929 Danish pigs had been free from this infection. Infected hares were shot in the district and the organism isolated from them had a similar pathogenicity for pigs, boars being particularly susceptible to infection *per os*. An unusual feature of the infection in female pigs was the presence of miliary lesions in the uterus resembling those of miliary TB.

—R. B. HOLCOMBE.

MORÁN, B. L. & MAUBECIN, R. A. (1954). La prueba del anillo (ABR) en brucelosis caprina. **[Ring test (ABR) in caprine brucellosis.]**—*Rev. Vet. Milit., B. Aires.* **2,** 201-203. [Only abst. given.] [English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.*, S. Paulo. April 3–10, 1954. Sect. A. pp. 15-16. Mimeographed.] **1914**

Results of the brucella ring test on goats' milk were compared with results of the rapid plate agglutination test on whole blood from the same goats. When only the typical ring formation was taken as the criterion for positive diagnosis, no correlation could be established between the results of the two tests, but results were more comparable when all abnormal reactions to the ring test were included.

—H. E. HARBOUR.

CARRÈRE, L. & ROUX, J. (1953). Obtention de formes L de *Brucella melitensis*. [**"L" forms of** *Br. melitensis*.]—*Ann. Inst. Pasteur.* **84,** 796-798. **1915**

A freshly isolated strain of *Br. melitensis* from a human being gave rise to the formation of a high proportion of "large bodies" in media containing 2,000 I.U. of penicillin; after incubation for 20 hours, these forms appeared to be almost exclusively present in the culture, each organism apparently having given rise to a "large body". When subcultured on penicillin-free medium they reverted to the bacillary form and further subcultures on semi-solid media yielded true L-colonies.—A. MAYR-HARTING.

KUPPUSWAMY, P. B. (1954). **Chemotherapy of brucellosis in rams.** — *N.Z. vet. J.* **2,** 110-118. **1916**

Twenty-four clinically healthy rams were inoculated with the strain of brucella virulent for sheep in New Zealand described by Buddle & Boyes [*V.B.* **23,** 3293] and all developed clinical infection. Five months later they were divided into 4 groups each of 6, and 3 groups were respectively treated daily for 21 days with aureomycin (chlortetracycline) plus dihydrostreptomycin, sulphadimidine sodium plus dihydrostreptomycin and dihydrostreptomycin alone, the fourth group being untreated controls. Whereas dihydrostreptomycin alone or in conjunction with sulphadimidine failed to cure, in conjunction with aureomycin it was effective. The semen was examined for 113 days after treatment: in the rams given dihydrostreptomycin with aureomycin it was normal 3 days after the cessation of treatment and remained so. The absence of the organism in the genital organs was confirmed by bacteriological examination P.M. The treatment would, however, be uneconomical except for valuable rams.

—F.E.W.

KELLY, E. H., GORELICK, A. N., SILVERMAN, S. J. & BRAUN, W. (1953). **Further studies on superinfection in experimental cavine brucellosis. I. Early superinfection. II.**

The effects of different combinations of *Brucella* species. — *J. infect. Dis.* **93**, 181-186 & 187-191. [Authors' summaries modified.] **1917**

I. G. pigs infected with *Br. abortus* and superinfected 5 days later with *Br. suis* had little resistance to the latter organism. When the interval between infection with *Br. abortus* and superinfection with *Br. suis* was extended to 10 days a small proportion of the animals were resistant to the latter infection and this proportion increased when the interval was further increased. However *Br. suis* was isolated more frequently from those killed 21–28 days after superinfection than from those killed 7–14 days after superinfection.

II. G. pigs were infected with *Br. suis* or *Br. melitensis* and superinfected 5 or 15 days later with *Br. suis*, *Br. melitensis*, or *Br. abortus*. They were killed 4 weeks later and the presence or absence of the second infection was determined by bacteriological studies.

Br. suis could be readily superimposed on *Br. melitensis* infection but less easily on a homologous infection. *Br. melitensis* was superimposed upon either *Br. suis* or *Br. melitensis* at 5 days but was inhibited to some extent by infections of 15 days' duration. *Br. abortus* became established in very few animals infected with *Br. suis*. The authors discussed factors which may influence the outcome of experiments on superinfection.

VAGNI, O., MASCARO, L. A. & VILLEGAS, C. (1954). Relación de causa entre la infección leptospirósica y la irido-ciclo-coroiditis de los caballos. II. **[Causal relationship between leptospirosis and equine periodic ophthalmia. II.]** — *Rev. Vet. Milit., B. Aires.* **2**, 188-195. **1918**

By serological tests, animal inoculation, and culture of lachrymal secretion and urine the authors claim to have confirmed that equine periodic ophthalmia is a local manifestation of leptospirosis.—H. E. HARBOUR.

VAN DER HOEDEN, J. (1955). **Epizootiology of leptospirosis (*canicola*) in the bovine and other species in Israel.**—*J. Amer. vet. med. Ass.* **126**, 207-210. [Author's summary modified.] **1919**

In three of four outbreaks of *L. canicola* infection in cattle in Israel, there was no evidence that dogs had acted as a primary source of the infection. In the vicinity of the outbreaks, several jackals proved to be carriers of *L. canicola;* they excreted the organism in the urine and P.M. examination revealed interstitial nephritis.

Besides dogs in Israel, jackals are an important natural reservoir of *L. canicola*, representing a hazard to the health of man as well as of cattle.

A strain of *L. canicola* cultivated from a dog provoked only clinically inapparent infection in jackals, but P.M. examination of these animals revealed interstitial nephritis and leptospira were present in the kidneys. A culture of *L. canicola*, freshly isolated from the kidneys of a jackal and containing a small number of organisms, provoked severe symptoms and death within 20 days after instillation into the nostrils or the conjunctival sacs in young dogs. Oral instillations caused severe acute nephritis within 26 days. Leptospira were cultivated from the kidneys, liver and urine of these dogs.

On farms where many cows had high agglutinin levels against *L. canicola*, significant titres were also found in horses and in a donkey which had no clinical symptoms.

YORK, C. J. & BRUECKNER, A. H. (1954). **A method for control of bovine leptospirosis.**— *Proc. 57th Ann Meet. U.S. live Stk. sanit Ass.* 1953. pp. 176-182. [Authors' summary modified.] **1920**

The authors described the use of a vaccine prepared from *L. pomona* [see *V.B.* **23**, 2220] on experimental calves and in infected herds. It protected cattle against infection following either inoculation with virulent leptospira or by adequate field exposure. They consider that the use of a vaccine against *L. pomona* infection coupled with an adequate serological service should provide reasonable control of the disease.

KIRSCHNER, L. (1954). **Recent studies on leptospirosis in New Zealand. Infection with a new type (*Leptospira mitis*) Johnson (syn. *Lept. hyos*) in man and animals.** — *N. Z. med. J.* **53**, 119-128. **1921**

Of 130 human patients in New Zealand 107 were farmers, their families and dairy personnel, 12 were pig breeders, the remainder a veterinary surgeon and abattoir and meat refrigeration plant personnel. About 80% of the infections occurred during the rainy season. Of 100 pig serum samples collected at random at the Dunedin abattoir 6 agglutinated *L. mitis*, 15, *L. icterohaemorrhagiae* and 19, *L. pomona*. Titres of 1:150 and higher were regarded as positive. Of 100 cattle serum samples 20 yielded positive *L. pomona*, 8, *L. icterohaemorrhagiae* and 3, *L. mitis* titres. Milk-whey agglutination was not found suitable in

large-scale surveys of leptospirosis in farm animals, although it is stated that it may be of value in outbreaks on dairy farms.—E.G.

KIRSCHNER, L. (1954). **Two cases of leptospirosis resembling typhoid fever.** — *N. Z. med. J.* **53,** 508-510. **1922**

An account of leptospirosis in two dairy farmers who had been admitted to hospital with symptoms of typhoid fever. They yielded *L. pomona* titres of 1:2,500 and 1:5,000 respectively. Examination of urine and faeces for salmonella was negative.—E.G.

PERCIVAL, R. C., BURKHARDT, R. L., COOPER, M. S. & MARTINI, F. V. (1954). **Vaccination of sheep with *Clostridium perfringens* Type D vaccines.**—*Amer. J. vet. Res.* **15,** 574-577. [Authors' summary modified.] **1923**

The presence of alum in *Cl. welchii* type D vaccine increased the severity and persistence of local reactions after vaccination. Alum alone produced no reactions and killed culture produced only a minimal response. However, alum in combination with toxoid or washed cells produced a reaction equal to that of the alum-precipitated vaccine. No significant difference in the intensity or duration of the immune response (as determined by antitoxin levels) was observed when alum was omitted from the vaccine.

MUNOZ, J., SCHUCHARDT, L. F. & VERWEY, W. F. (1953). **Factors influencing the standardization of *Clostridium perfringens* type D bacterin.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June* 23-26*th*, 1952. pp. 104-109. **1924**

The authors described a method for the standardization of *Cl. welchii* Type D toxoid. Results were markedly affected by the diluent used for the toxin, beef broth giving a more potent preparation than saline. Other factors affecting the test in lesser degree were also noted. [The method of standardization described ignores the advantages of LD_{50} estimation and the problem of estimating the error of the test is not considered.]—F. B. LEECH.

BUDDLE, M. B. (1954). **Production of immunity against *Clostridium chauvoei* infection in sheep.**—*N. Z. J. Sci. Tech.* Sect. A. **35,** 395-413. **1925**

B. described the preparation of a formolized alum-precipitated vaccine prepared by culture of an 18-hour culture of *Cl. chauvoei* in beef broth containing glucose and cysteine hydrochloride. In tests in sheep the potency of the vaccine was found to be comparable with that of two other New Zealand vaccines and of an American one, all of them alum-precipitated products. All commercial blackleg vaccines in New Zealand are now prepared according to the technique described in this paper. Vaccination during pregnancy eliminates losses from blackleg following lambing and the lambs are passively protected for 3 weeks.—C. C. BANNATYNE.

DOZZA, G. (1954). Ricerche sull'influenza dell' elettroshock nel tetano sperimentale del coniglio. **[Effects of electric shock on rabbits experimentally injected with tetanus toxin.]**—*Vet. ital.* **5,** 704-713. [English, French and German summaries.] **1926**

The administration of electric shocks to rabbits previously inoculated i/m with *Cl. tetani* toxin exerted no beneficial effect on the course of tetanus and sometimes accelerated death.
—I. MARTINI.

PRÉVOT, A.-R., SILLIOC, R. & GAY, H. (1954). Étude d'un foyer de botulisme équin de type C. **[An outbreak of botulism in horses caused by *Cl. botulinum* type C.]**—*Rec. Méd. vét.* **130,** 353-355. **1927**

After the occurrence of Type C botulism in a horse and a mule in a stable a cat's carcass was found in confact with the fodder. This was considered to be circumstantial evidence that the carcass was the source of the botulism.
—T. E. GATT RUTTER.

BOROFF, D. A. & CABEEN, H. D. (1954). **Studies of toxins of *Clostridium botulinum*. II. Immunization of rabbits with an atoxic variant of *Clostridium botulinum*, Type C.**—*J. Bact.* **67,** 198-201. **1928**

An atoxic variant of *Cl. botulinum*, Type C, appeared under certain cultural conditions. This was tested against the toxic variants and the partially purified toxins and in each case the presence of specific antibodies was revealed by the agglutination, precipitation, protection and absorption tests. This led the authors to the opinion that the toxic element of the organism was in its cytoplasm.—T. E. GATT RUTTER.

LEMÉTAYER, E., NICOL, L., GIRARD, O., CORVAZIER, R. & CHEYROUX, M. (1953). Recherches sur le botulisme expérimental chez le cheval. **[Experimental botulism in horses.]**—*Bull. Acad. vét. Fr.* **26,** 391-397. Discussion: pp. 397-399. **1929**

A horse injected s/c with 10 lethal doses of botulinus Type E toxin showed signs of intoxication after 45 hours and when then injected s/c with 250 ml. of Type E antiserum containing 1,000 to 2,000 units per ml. it recovered in 5 days.—J.D.

CARTER, G. R. & HENDERSON, J. A. (1955). **Contagious foot rot of sheep.** — *Canad. J. comp. Med.* **19,** 26-29. **1930**

The infectious form of foot rot in sheep which is widespread in Ontario is believed to be caused primarily by *Fusiformis nodosus*. A presumptive diagnosis can be made on the clinical history and gross pathology. The organism can be identified in smears from deep lesions. The authors discussed treatment with copper sulphate, formol, and with chloramphenicol. They discussed work done in Australia [*V.B.* **25,** 1294-1296] following Beveridge's work [*V.B.* **12,** pp. 104-105]. In Ontario the disease occurs particularly in flocks into which imported sheep have been introduced.—R. GWATKIN.

MORSE, E. V. & RISTIC, M. (1954). **Experimental *Vibrio fetus* infection in guinea pigs. III. Pathogenicity studies and the effect of guinea pig passage upon agglutinogens.**—*Amer. J. vet. Res.* **15,** 599-603. [Authors' summary modified. For previous parts, see *V.B.* **24,** 15 & **25,** 47.] **1931**

The authors investigated the pathogenicity of 31 strains of *V. fetus* or organisms resembling *V. fetus* for pregnant g. pigs. The majority of the strains caused abortion, and the organisms were isolated from the genital tract or foetal material at the time of P.M. examination. They described the lesions seen in infected g. pigs.

Three of the strains were more suitable as antigens for the serum agglutination test after passage in g. pigs than before passage. The authors suggested that this was due either to the elimination of less virulent organisms, or to the multiplication of antigenic variants during passage.

MACPHERSON, J. W. & FISH, N. A. (1954). **The survival of pathogenic bacteria in bovine semen preserved by freezing.**—*Amer. J. vet. Res.* **15,** 548-550. [Authors' summary modified.] **1932**

Suspensions of *Brucella abortus, Erysipelothrix* [*Listeria*] *monocytogenes, Corynebacterium pyogenes,* and *Vibrio fetus* were added to semen samples which were then kept at 5°C. for 3 days or at −79°C. for 3–7 days, with and without the addition of penicillin and streptomycin. Organisms of all four species survived both treatments, even when antibiotics had been added. However, viable organisms were isolated from samples only after the antibiotics, if present, had been removed by washing.

HAUDUROY, P. (1954). Mécanisme de formation des formes filtrables et invisibles. [**Mechanism of the formation of filtrable forms of bacteria.**]—*Ann. Inst. Pasteur.* **86,** 395-400. **1933**

H. discussed the preparation of filtrable forms of bacteria by arresting the lytic action of phages, and the subsequent reconstitution of normal whole bacteria from cultures of filtrable forms prepared in this way.—A.S.

ANON. (1954). **Synopsis of amendments and revisions of the International Code of Nomenclature of Bacteria and Viruses (Bacteriological Code).**—*Int. Bull. bact. Nom. Taxon.* **4,** 168-187. **1934**

This paper consists of a series of official amendments and additions to the bacteriological section of the International Code of Nomenclature on Bacteria and Viruses.—A.S.

SMITH, D. L. T., FISCHER, J. B. & BARNUM, D. A. (1955). **Generalized *Cryptococcus neoformans* infection in a dog.**—*Canad. med. Ass. J.* **72,** 18-20 [Authors' summary modified.] **1935**

Generalized infection with *C. neoformans* in a dog ran a chronic course and was characterized by ulcerative stomatitis and rhinitis. The diagnosis was made from haematoxylin and eosin stained paraffin sections of biopsy material and confirmed by culture and animal inoculation. Characteristic lesions were demonstrable in the nasal chambers, mouth, trachea, lungs, mediastinal lymph nodes and spleen and in the coronary borders of the claws.

MENGES, R. W., FURCOLOW, M. L. & HINTON, A. (1954). **The role of animals in the epidemiology of histoplasmosis.** — *Amer. J. Hyg.* **59,** 113-118. **1936**

In a survey of *Histoplasma capsulatum* infection, tissues from 787 animals of 22 species were cultured and the organism was isolated from 18; those yielding cultures included 9 dogs, a cat, 3 rats, 4 racoons and a skunk. Serum samples from 10 out of 485 animals of 10 species yielded a positive reaction in the c.f. test with histoplasmin; the positive samples were from 5 dogs, 3 rats, a cow and a lamb.

These findings appeared to support the theory that animals and human beings are infected from a common source.—F.E.W.

ZEIDBERG, L. D. (1954). **A theory to explain the geographic variations in the prevalence of histoplasmin sensitivity.**—*Amer. J. trop. Med. Hyg.* **3,** 1057-1065. **1937**

Z. examined records of histoplasmin sensitivity in the population of the U.S.A., and

found that the percentage of reactors was significantly higher in regions with red-yellow podzolic soils. He concluded that possibly these soils provide the most favourable habitat for the fungus, which lives saprophytically in the soil.—A.S.

RITTER, C. (1954). **Studies of the viability of *Histoplasma capsulatum* in tap water.**—*Amer. J. publ. Hlth.* **44**, 1299-1304. **1938**

The yeast phase of *H. capsulatum* survived in sterile tap water for 621 days at 4°C. and 62 days at 37°C. The corresponding data for the mycelial phase were 421 and 269 days, respectively. Neither form survived 3 days at 45°C.—G. C. AINSWORTH.

VAN UDEN, N. (1951/52). Eine einfache Methode zum Studium der Pilzmorphologie im allgemeinen und der vegetativen Anastomosen im besonderen. Zugleich ein Beitrag zur Frage der systematischen Position des *Microsporum canis* Bodin (1902) and des *Microsporum langeroni* Vanbreuseghem (1950). **[A method for the study of fungus morphology; classification of *Microsporum canis* and *M. langeroni*.]**—*Arch. Derm. Syph., Wien.* **193**, 468-484. **1939**

The author described a slide culture method for the study of fungus morphology, in which the nutrient medium is reduced to an invisible film of fluid. Growth thus takes place in one plane, and staining is made easy. This technique is particularly suited to the study of vegetative anastomoses in relation to the classification of pathogenic and non-pathogenic fungi.—W. R. BETT.

ZEIDBERG, L. D. & AJELLO, L. (1954). **Environmental factors influencing the occurrence of *Histoplasma capsulatum* and *Microsporum gypseum* in soil.**—*J. Bact.* **68**, 156-159. **1940**

Of 473 soil samples collected from 112 localities in Williams County, Tennessee, 28 yielded *H. capsulatum* and 27 out of 71 cultured yielded *M. gypseum*. *H. capsulatum* was found predominantly in soils associated with fowls while *M. gypseum* was more generally distributed. The reason for the association of the *Histoplasma* isolations with fowls remains unexplained.—G. C. AINSWORTH.

KIMBALL, A., TWIEHAUS, M. J. & FRANK, E. R. (1954). ***Actinomyces bovis* isolated from six cases of bovine orchitis. A preliminary report.**—*Amer. J. vet. Res.* **15**, 551-553. **1941**

The authors isolated *Actinomyces bovis* from the surgically-removed testicles of 6 bulls with orchitis. They described the cultural and biochemical properties of the organisms.—R.M.

MCCLUNG, N. M. (1954). **The utilization of carbon compounds by *Nocardia* species.**—*J. Bact.* **68**, 231-236. **1942**

Forty-three isolates of *Nocardia* species were tested for the ability to utilize 39 different carbon compounds. No two organisms, including 6 isolates of *N. asteroides*, used exactly the same series of compounds and there was no correlation between carbon utilization and morphological groups. The results suggested that species of *Nocardia* prefer carbon compounds having an α-glucoside linkage (*e.g.* maltose, starch) to those having a β linkage (cellobiose, lactose).—G. C. AINSWORTH.

CAMPBELL, J. G. (1954). **Bangkok haemorrhagic disease of chickens: an unusual condition associated with an organism of uncertain taxonomy.**—*J. Path. Bact.* **68**, 423-429. [Author's summary and conclusions modified.] **1943**

C. described a fatal infection affecting chickens a few months old, characterized by general petechial haemorrhages, small cysts in the tissues, and meningitis. It is associated with the presence of organisms in the blood which bear some resemblance to toxoplasms, but differ from them in that they are always extracellular and non-motile, and in showing little evidence of binary fission. Similar organisms occur in the tissues, where they may be intracellular, especially in the splenic macrophages, where they appear to proliferate. He suggested that parasitized macrophages trapped in various organs develop into large cysts which, upon maturation, discharge their spores into the tissue spaces and the lymph and blood streams.

Infection may be by inhalation, since the oldest lesions are found in the lungs, which are always severely involved.

C. considered the organism to be a unicellular phase of a dimorphic fungus which is normally a saprophyte but can become adapted to a parasitic existence, and that it is possibly related to the debatable group which contains sarcosporidia, rhinosporidia and coccidioides.

THOMPSON, R. E. M. (1954). **A species of *Rhizobium* isolated from strawberry foot-rot in the sheep.** — *J. Path. Bact.* **68**, 445-452. [Author's summary modified.] **1944**

T. described an organism isolated from the lesions of experimental strawberry foot rot in the domestic rabbit. It was shown to be the agent solely responsible for the lesions in this species and to produce lesions like strawberry foot rot in sheep. It was antigenic, but

did not give rise to protective antibodies in the rabbit. It was provisionally identified as a species of *Rhizobium*.

CAWLEY, E. P., WHEELER, C. E., MCMANUS, J. F. A. & FRENCH, A. J. (1954). **Use of Ritter and Oleson staining method for demonstration of fungi in paraffin sections.**—*Arch. Path.* **58,** 94-97. **1945**

The authors gave details of a modified staining technique which they found to be very suitable for the demonstration of fungi in paraffin sections.—F.E.W.

PRIESTLEY, F. W. (1954). **The growth of the contagious bovine pleuropneumonia organism in egg and its constituents.**—*Brit. vet. J.* **110,** 517-519. [Author's summary slightly modified.] **1946**

The organisms of bovine contagious pleuropneumonia did not survive when mixed with the beaten up contents of fertile eggs.

This bactericidal action was a property of the albumen and not of the yolk of the eggs.

MORNET, P. (1954). **Treatment in contagious bovine pleuropneumonia.** — *Bull. epiz. Dis. Afr.* **2,** 26-41. [In English and French.] [Mimeographed.] **1947**

An account of the treatment of bovine contagious pleuro-pneumonia by the intravenous injection of 9 g. neoarsphenamine in 1% soln., 3 doses being given at intervals of 2 days. M. recommended that recovered cattle should be sent to the abattoir.—R.M.

CARTER, G. R. (1954). **Observations on pleuropneumonia-like organisms recovered from swine with infectious atrophic rhinitis and Glasser's disease.**—*Canad. J. comp. Med.* **18,** 246-251. **1948**

C. failed to transmit atrophic rhinitis of swine to piglets by the nasal instillation of cultures of a pleuropneumonia-like organism isolated from the lesions of pigs affected with the disease.

He isolated a similar organism from pigs affected with a disease closely resembling "Glasser's disease" and reproduced the latter disease in healthy pigs by inoculation of a secondary culture of the organism; healthy pigs placed in contact with the infected ones remained healthy.—THOMAS MOORE.

THOMPSON, C. H., JR. (1954). **Propagation of a mixed culture of a chronic respiratory disease agent and Newcastle disease virus in chicken embryos.** — *Amer. J. vet. Res.* **15,** 293-297. **1949**

T. studied the possibility that the agent of "chronic respiratory disease" of fowls (c.r.d.), which has not yet been identified, could be transmitted in Newcastle disease vaccine, in view of the fact that c.r.d. has occurred soon after flocks have been vaccinated against N.D. He found that the agent of c.r.d. could be transmitted by serial passage in chick embryos inoculated with N.D. virus contaminated with the agent, without the embryos showing signs of c.r.d. In similar mixtures of the two pathogens, he neutralized the N.D. virus with antiserum and inoculated chick embryos with the neutralized material. Lesions characteristic of c.r.d. developed in the embryos, and N.D. haemagglutinin was absent.—R.M.

WIGAND, R. & PETERS, D. (1954). Abbauversuche an *Haemobartonella muris* und *Eperythrozoon coccoides*. [**Breakdown products of *H. muris* and *E. coccoides*.**]—*Z. Tropenmed. u. Parasit.* **5,** 482-492. [English summary modified.] **1950**

Fixed specimens of *H. muris* and *E. coccoides* were exposed to the action of nucleases and proteases. The capacity of the organisms to take the Giemsa stain was slightly reduced after ribonuclease treatment and somewhat more so after deoxyribonuclease treatment; following the combined action of both, the Giemsa stain did not take at all.

In electron-optical preparations, the effect was complete only when pepsin was put to work after the nuclease treatment. This is in analogy with former experiments on other micro-organisms. Pepsin preceded by ribonuclease and deoxyribonuclease caused a considerable reduction of germ substance while control experiments with N/100 hydrochloric acid in similar combination had a slight influence only. Pepsin combined with either ribonuclease or deoxyribonuclease generally led to moderate digestion, pepsin alone caused slight changes only. Trypsin dissolved the nucleoproteins without distinction and to a large degree. Nuclear elements or membranes in the usual sense could not be observed.

Irregularities in the outcome of experiments were attributed to the unstable structure of the micro-organisms and to the impossibility of working on uniform stages of their development.

See also absts. **2024** (paralysis induced by pneumococcal polysaccharides); **2117** (infectious diseases of calves); **2118** (infectious diseases of fowls); **2128** ("Lumpy jaw" in kangaroos); **2228** (report, Jamaica); **2229** (report, Belgian Congo); **2231** (book, microbiology); **2232** (book, chemotherapy of TB.); **2233** (book, B.C.G. vaccination).

DISEASES CAUSED BY PROTOZOAN PARASITES

BOERO, J. J. (1954). La tripanosomiasis equina (mal de caderas). [*Trypanosoma evansi* **infection.**]—*Rev. Vet. Milit., B. Aires.* **2,** 78-80 & 82-90. **1951**

A general description of the disease in its various aspects. B. stated that the causal agent is *T. evansi,* which, he believed to be identical with *T. equinum.*—I. W. JENNINGS.

QUEVEDO, J. M., JR., MENDY, R. M., BARDI, S. J, FEDERMAN, J., TROVATO, O. A., ROVEDA, R. J., DIAZ COLODRERO, O., BOERO, J. J., DE LA VEGA, H. A., URRUTIA, A., D'ANGELO, E., ORLIACQ, C. & VAGNI, O. (1954). Observación sobre la tripanosomosis equina ("mal de caderas"). Por la Comisión Argentina para el estudio de la tripanosomosis equina. **[Observations by the Argentinian Commission on *Trypanosoma equinum* infection in horses.]**—*Rev. Vet. Milit., B. Aires.* **2,** 291-308. **1952**

A series of tests conducted at different laboratories showed that quinapyramine sulphate ("antrycide methyl sulphate") in one or two doses of 2–3 g. was effective over a period of more than 250 days in preventing the development of clinical trypanosomiasis following artificial infection with *T. equinum.*

Curative tests with the same dosage rate were successful. Doses of 10 g. of antrycide were tolerated. The authors also described tests with suramin ("moranyl" and "naganol") and with "suravlon", a drug with similar composition.—H. E. HARBOUR.

WERNER, H. (1954). Über die Frage der placentaren Trypanosomen-Infektion und Übertragung von Trypanosomen und Antikörpern durch die Milch auf das Neugeborene. **[Infection with trypanosomes through the placenta; transmission of trypanosomes and their antibodies to the new-born *via* the milk.]**—*Z. Tropenmed. u. Parasit.* **5,** 422-442. [English summary.] **1953**

W. infected pregnant mice, hamsters, rats and g. pigs intraperitoneally and subcutaneously with *T. equiperdum, T. gambiense, T. congolense* and *T. cruzi.* There was no evidence of maternal transfer of trypanosomes and antibodies *via* milk and placenta to 552 mouse embryos, 109 rat embryos, 277 embryos of hamsters and 24 embryos of g. pigs.—E.G.

CORRADETTI, A. (1954). Lotta contro la leishmaniosi mediante la lotta contro i flebotomi in Italia. **[Control of *Leishmania* infection in Italy by eradication of *Phlebotomus.*]**—*R. C. Ist. sup. Sanit.* **17,** 374-384. [English, French and German summaries.] **1954**

Spraying of D.D.T. in marshy, mosquito-infested areas of Italy by the Public Health authorities during an antimalarial campaign resulted also in the eradication of *Phlebotomus* and the consequent disappearance of *Leishmania* infection in these districts. Similar campaigns have now been started in non-malarial districts where leishmaniasis is endemic.—E.G.

SHONE, D. K. (1954). **Notes on antrycide methyl sulphate.**—*J. S. Afr. vet. med. Ass.* **25,** No. 3, pp. 39-40. **1955**

The s/c inoculation of antrycide methyl sulphate produced an oedematous reaction with a chalky deposit, the latter probably resulting from the formation of the insoluble salt of antrycide chloride.

—JAS. G. O'SULLIVAN.

FRAGA DE AZEVEDO, J. (1954). L'état actuel du problème du kala-azar au Portugal. **[Leishmania infection in Portugal.]** — *Arch. Inst. Pasteur. Algér.* **32,** 234-254. **1956**

Kala-azar, first reported in 1910 is now widespread in Portugal. The causal organism is *L. donovani* and the disease does not differ markedly from that found in other Mediterranean areas. The incidence is highest in children aged 1–3 years, and the reservoirs of infection are dogs. The author is not convinced that all cases are spread by the bites of *Phlebotomus*; he gave evidence for spread by contact. The condition was not dependent on climate but there was a seasonal incidence, fewest cases occurring in December.

—JAS. G. O'SULLIVAN.

KRANEVELD, F. C. & DE VIN, N. J. (1954). Toepassing van enheptin op een met blackhead besmet kalkoenen-bedrijf. **[Use of "enheptin" (aminonitrothiazole) in an outbreak of blackhead in turkeys.]** — *Tijdschr. Diergeneesk.* **79,** 291-295. [English, French and German summaries.] **1957**

In a group of 181 turkey poults prophylactically treated with 2-amino-5-nitrothiazole, 0·03% in the drinking water the mortality from blackhead was 10·5%, whereas all of 20 untreated controls died. Of 56 poults similarly treated with 0·1% of the drug in the mash 3 died; of 10 untreated controls one succumbed.

—C. A. VAN DORSSEN.

DeVolt, H. M., Tromba, F. G. & Holst, A. P. (1954). **An investigation to determine whether immunity to infectious enterohepatitis (blackhead) of turkeys develops during enheptin treatment.** — *Poult. Sci.* **33,** 1256-1261. [Authors' conclusions modified.] **1958**

In young turkeys that were protected from blackhead by 2-amino, 5-nitrothiazole ("enheptin") during exposure to the infection from contaminated soil, there was on an average about the same death rate after cessation of treatment as in controls not previously exposed. In some instances, poults were found to harbour histomonads in caecal glands while the drug was being administered in the food at the preventive (0·05%) level.

Pino, J. A., Rosenblatt, L. S. & Hudson, C. B. (1954). **Inhibition of pituitary gonadotropin secretion in domestic fowl by enheptin (2-amino, 5-nitrothiazole).**—*Proc. Soc. exp. Biol., N.Y.* **87,** 201-207. **1959**

Gonadotrophic substances given by mouth simultaneously with "enheptin" (2-amino, 5-nitrothiazole) prevented the inhibition of sexual activity by that drug. "Enheptin" did not suppress thyroidal hypertrophy during thiouracil treatment. It diminished the potency of pituitary gonadotrophic hormone in capons and in intact birds.—A.S.

Rosenberg, M. M., Alicata, J. E. & Palafox, A. L. (1954). **Further evidence of hereditary resistance and susceptibility to cecal coccidiosis in chickens.** — *Poult. Sci.* **33,** 972-980. **1960**

Two strains of fowls, differing markedly in their resistance to artificial infection with *Eimeria tenella* were developed from an original mating of one male and 14 females. Their progeny and that of subsequent generations were fed test doses of oocysts during a 6-year observation period. Resistance and susceptibility appeared to be influenced by a Mendelian factor or factors of weak dominance and not by transference of passive immunity from dam to offspring.—M. L. Clarke.

Huff, C. G. (1954). **Similarities between schizogony and sporogony in *Plasmodium*.** —*Res. Rep. Nav. med. Res. Inst., Bethesda.* **12,** 129-136. [Author's abst. modified.] **1961**

Although the literature on malaria emphasizes the differences between schizogony and sporogony, H. presented cytological and chemotherapeutic evidence to show their essential similarity. He suggested that acceptance of the concept that sporogony (agamogony) is merely the first generation of schizogony which happens to take place before the change of hosts, would materially aid research on both the schizogonic and sporogonic phases of the life cycle.

Sergent, E., Donatien, A. & Parrot, L. (1954). Du genre Piroplasma L.S. et des sous-genres Piroplasma S.S. et Babesiella (hémocytozoaires). [**The genus *Babesia*.**]— *Arch. Inst. Pasteur. Algér.* **32,** 194-197. **1962**

The authors maintained that the genus is *Piroplasma* and comprises *Piroplasma* and *Babesiella*. They described the European species of *Babesiella* as *B. bovis, B. divergens* and *B. major*. *B. berbera* has been recorded from North Africa.—Jas. G. O'Sullivan.

Džekov, A. (1953). Neki podaci o raširenosti piroplazmoze u NR Makedoniji. [**The spread of piroplasmosis in Macedonia.**] — *Veterinariya, Sarajevo.* **2,** 114-120. [In Croat. Abst. from English summary.] **1963**

In Macedonia during the period 1933-37 piroplasmosis was recorded in 19 horses and 681 cattle, as compared with 90 horses and 1,178 cattle during 1941-44, and 1,458 horses and 4,525 cattle during 1945-50.—R.M.

Grimpret, J. (1953). Symptômes cutanés de la theilériose bovine. [**Skin lesions in bovine theileriasis.**]—*Bull. Acad. vét. Fr.* **26,** 535-537. **1964**

A short illustrated account of the cutaneous aspects of theilerasis in cattle. Differential diagnosis from photosensitization and leptospirosis was discussed.—J.D.

Quevedo, J. M., Jr., Bardi, S. J. & Elizondo, M. J. (1954). El antrycide en la "tristeza de los bovinos" (piroplasmosis y anaplasmosis). [**Antrycide treatment in piroplasmosis and anaplasmosis.**]—*Rev. Vet. Milit., B. Aires.* **2,** 209. [Only abst. given.] [English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.*, S. Paulo. April 3-10, 1954. Sect. C. p. 1. Mimeographed.] **1965**

Quinapyramine sulphate (antrycide methyl sulphate) in doses of 1 to 3 g. in a 10% soln. in distilled water was injected subcutaneously in cattle infected naturally or experimentally with *Babesia bigemina* or *Anaplasma marginale*. The drug was effective in piroplasmosis, but failed in anaplasmosis.—H. E. Harbour.

Vollbrechtshausen, R. (1954). Vergleichende Untersuchungen über den Sabin-Feldman-Farbtest und die Toxoplasma-Komplementbindungsreaktion nach Westphal in Tierversuchen. [**Comparison of the Sabin-Feldman test with the complement-fixation test in the diagnosis of toxoplasmosis in laboratory**

animals.]—*Z. Tropenmed. u. Parasit.* **5,** 401-422. [English abstract.] **1966**

The author infected 17 dogs, 4 sheep, 5 rats, 6 hamsters, 16 rabbits, 13 g. pigs and 17 chicks with *T. gondii* and gave results of examination by the dye test described by Sabin & Feldman and the complement-fixation test described by Westphal. Eleven dogs which survived the infection yielded positive reactions to both tests 8–10 days after infection and remained positive for a period of several months. Of the 6 dogs which died 3 had been negative to the haemagglutination test. Sheep and rats survived the infection, and yielded steady titres to both tests up to 9 months after infection. Hamsters succumbed to the infection within 11 days, but gave positive titres to both tests during their lifetime. All except 7 rabbits died yielding positive reactions to the dye test after 8 days and positive reactions to the c.f. test after 4 weeks. Titres remained constant for 5–7 months. Most of the g. pigs died within 2 weeks, yielding positive reactions to the dye test and negative to the c.f. test. Chicks appeared to resist the infection.—E.G.

NOBREGA, P., TRAPP, E. E. & GIOVANNONI, M. (1954). Toxoplasmosis en gallinas. **[Spontaneous toxoplasmosis in the domestic fowl.]**—*Rev. Vet. Milit., B. Aires.* **2,** 209-210. [Only abst. given.] [English summary in *Summ. of Communications. IInd Pan-Amer. Congr. vet. Med.*, S. Paulo. April 3-10. 1954. Sect. C. pp. 2-3. [Mimeographed.] **1967**

Toxoplasmosis caused 50% mortality in 600 New Hampshire pullets, 2–3 months old. The disease developed in 4 days, with lesions of pneumonia, myocarditis, and focal necrosis of the liver and spleen. In 10 cases toxoplasms were demonstrable in smears and sections and were isolated by mouse inoculation of tissue suspensions. Transmission attempts from mouse to bird failed.—H. E. HARBOUR.

BOGACZ, J. (1954). La magnamycine et l'ilotycine. Leur action vis-à-vis des toxoplasmes. **[Action of carbomycin and erythromycin on toxoplasms.]**—*C. R. Soc. Biol. Paris.* **148,** 276-278. **1968**

B. stated that carbomycin and erythromycin in doses of 40–50 mg./kg. were lethal to toxoplasms, preventing the production of experimental toxoplasmosis. The experimental animal was not named. Erythromycin was claimed to have passed the placental barrier.
—JAS. G. O'SULLIVAN.

SAVAGE, A. & ISA, J. M. (1955). **An occurrence of *Leucocytozoon simondi* in Manitoba.**—*Canad. J. Microbiol.* **1,** 291-292. **1969**

The authors recorded a disease of domestic ducklings in Manitoba associated with a heavy infestation of *L. simondi*. The parasite had not been previously recognized so far west.
—R. GWATKIN.

ROBINSON, J. J. (1954). **Common infectious disease of laboratory rabbits questionably attributed to *Encephalitozoon cuniculi*.**—*Arch. Path.* **58,** 71-84. [Author's summary modified.] **1970**

Nearly a third of over 900 laboratory rabbits manifested a naturally occurring disease syndrome. It was a mild, chronic, systemic infection characterized by round-cell infiltrations. Major lesions were in the cerebral cortex, the renal cortex, and the cardiovascular system. There were no clinically diagnostic signs. Gross pathological examination revealed characteristic small, depressed scars on the surfaces of the kidneys, and frequently inflammation of the proximal aorta. The diagnosis was confirmed by microscopic examination of brain, kidney, and other tisues.

In numerous previous reports various lesions of this nature have been attributed to *Encephalitozoon cuniculi*, which some claim to be related to *Toxoplasma*. Special staining methods for this supposed protozoan parasite, *E. cuniculi*, did not reveal the infective microorganism, but indicated that in some previous reports fuchsinophilic (ceroid) pigment had been confused with the alleged *E. cuniculi*. The aetiology of this disease is unknown.

R. discussed the relation of this disease syndrome to toxoplasm, spirochaete, and other infections and emphasized its importance to those workng with experimental rabbits.

See also absts. **2221** (demonstration of protozoa in faeces); **2231** (book, microbiology); **2236** (book, parasitology).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

FEDERER, K. E. (1952). Primera obtención del cultivo del virus aftoso tipo "C", en embrión de pollo. **[Cultivation of type C foot and mouth disease virus in the chick embryo.]**—*Rev. Med. vet., B. Aires.* **34,** 133-137. [English, French and German summaries.] **1971**

A very virulent strain of F. & M. disease Type C virus was passed directly from bovine lingual epithelium and myocardium to chick

embryos. Subsequent passages through eggs resulted in the virus losing its pathogenicity for g. pigs and later, for cattle, but it maintained its immunizing power throughout the tests.
—I. W. JENNINGS.

ANON. (1954). Rapport sur une nouvelle expérience de contrôle du vaccin anti-aphteux Belin. [**Report on trials of the Belin foot and mouth disease vaccine.**]—*Bull. Acad. vét. Fr.* **27,** 563-591. **1972**

This paper reported an official field trial of a trivalent F. & M. disease vaccine made by a private firm using the technique described by Belin. It was compared with another trivalent vaccine known to be satisfactory, each vaccine being used in accordance with the makers' instructions. Both gave satisfactory protection after 3 weeks and no protection after 3 months.
—A.S.

SHELKOVY, G. T. (1954). [**Treatment of foot and mouth disease.**]—*Veterinariya, Moscow.* **31,** No. 8, pp. 29-32. [In Russian.] **1973**

S. emphasized the importance of combining local and general treatment. He stated that for local treatment, solutions or ointments, containing copper sulphate and acriflavine, had proved their value. For general treatment he advocated caffeine and bromides and enemas of dilute sodium bicarbonate.—A. MAYR-HARTING.

SKINNER, H. H. (1954). **Infection of chickens and chick embryos with the viruses of foot-and-mouth disease and of vesicular stomatitis.** [Correspondence.]—*Nature, Lond.* **174,** 1052-1053. **1974**

Chicks a few hours old were inoculated intramuscularly with a strain of F. & M. disease virus which had been passaged in mice. Muscle and heart from chicks killed a week later were infective for week-old mice, and it was possible to continue alternate passages of virus from chick to mouse; the virus could be recovered from the blood of chicks 3–5 days after inoculation. Macroscopic lesions of the tongue, similar to those seen in F. & M. disease in other animals, were present in these and other newly hatched chicks, 1–2 days after intramuscular injection of virus, and tongue tissue contained a high titre of virus. Lesions of the plantar surface of the feet, consisting of separation of the deeper epithelial layers of skin followed by exfoliation, were occasionally seen in infected chicks.

Attempts to cultivate F. & M. disease virus in chick embryos by inoculation into the chorio-allantoic space have rarely succeeded. Using the intravenous route, however, S. was able to infect chick embryos aged 14 days. In these embryos the myocardium appeared to be the main site of multiplication of the virus: after 8 serial passages some embryos died 3–6 days after inoculation, and examination revealed marked macroscopic lesions of the myocardium.

S. found that the virus of vesicular stomatitis could be passaged in chicks aged 1–3 weeks by the intracerebral route. Young and adult fowls were highly susceptible to this virus when inoculated intradermally into the tongue, and severe local lesions developed within 24 hours. Local lesions also developed in two ducks following the inoculation of vesicular stomatitis virus into the tongue.—R.M.

SCHOOP, G. (1954). Über den derzeitigen Tollwutseuchenzug. [**The present epidemiology of rabies.**] — *Z. Hyg. InfektKr.* **138,** 415-426. **1975**

The 1939 outbreak of rabies in Western Germany, though apparently controlled in 1940 and 1941, revived later and spread in a south-westerly direction, in wild anmals, mainly foxes and badgers which have been increasing in numbers since the second world war. S. illustrated the spread of the disease in 5 maps. It is 90% confined to wild animals.

In experimentally infected foxes the course of the disease varied from a few hours to 5 days, with no prodromal stage. The incubation period was usually 12 days, but might be up to 50 days. Healthy foxes placed in contact with clinically affected foxes were not bitten in numerous experiments. S. suggested that the disease spreads in foxes, especially in winter, when prey is scarce and during the breeding season (Feb-April). This would agree with the increased incidence noted in late spring and early summer

Legislation for the compulsory vaccination of dogs has been abandoned, the destruction of foxes and badgers being the main objective. The proscription of the use of poison during the breeding season has been modified so as to permit its use for these species. Occupied "earths" are gassed with hydrocyanic acid, and payment is made for animals killed. Even the most rigorous measures have not resulted in extermination.—F.E.W.

FIELD, E. J. (1954). **Pathogenesis of rabies following corneal inoculation in the rabbit.**—*J. Path. Bact.* **68,** 335-343. [Author's summary slightly modified.] **1976**

Following corneal inoculation of fixed rabies virus in the rabbit, encephalitis develops with considerable regularity on the sixth to the eighth day. The outstanding early clinical features are hypotonia and disturbance of equilibration, most marked in the hind limbs. Infiltration of the ipsi- and contralateral Gasserian

ganglia occurs early, and in diminishing degree spreads down to the other sensory ganglia.

The microglia reacts early in the pons, cerebellum and cerebrum and presents distinct alterations at a time when the nerve cells seem normal or only minimally affected. This early microglial reaction suggests a rapid interstitial diffusion of virus in the neuraxis independently of nervous connections.

F. discussed the possibility of blood and cerebrospinal-fluid dissemination of the virus. No direct evidence of axonal transmission was found.

REMLINGER, P., BAILLY, J. & HADJI, A. (1954). Contribution à l'étude du virus rabique Flury. **[Studies with the Flury strain of rabies virus.]** —*Bull. Acad. Méd., Paris.* **138,** 253-254. **1977**

With further passages in rabbits the Flury strain of virus produced a more varied symtomatology of 3 main types: (a) violent epileptiform or "hysteriform" crises 7–14 days after intracerebral inoculation, sometimes recurring even after several months; (b) a rapid form, almost symptomless, with death in 12 hours, (c) weakness and general paresis, usually fatal. Negri bodies are absent and the only proof is by further passage; a negative passage is not always reliable.

The serum of a sheep which had received almost 2 l. of virulent emulsion at a dilution of 1:50 was still very weakly antigenic. The authors doubted whether the Flury strain would more suitably fulfil the requirements of a vaccine than the Pasteur fixed virus. [Further work will be published in the *Arch. Inst. Pasteur d' Algérie.*]—F.E.W.

SCHANG, P. J. (1954). Antecedentes sobre viruela bovina en el pais. Algunas observaciones y experiencias propias. **[Cow pox in Argentina.]**—*Gac. vet., B. Aires.* **16,** 161-168. **1978**

A historical note on cow pox in Argentina—its introduction into the country, its incidence and spread and the methods of immunization. S. investigated the part played by ectoparasites in the generalization of cow pox.

—T. E. GATT RUTTER.

PUNTIGAM, F. & BERGER, K. (1954). Über das Verhalten des Serumcholesterins bei zur Gewinnung von Pockenschutzimpfstoff dienenden Jungrindern. **[Behaviour of serum cholesterol in calves used for the production of smallpox vaccine.]** — *Wien. tierärztl. Mschr.* **41,** 737-744. [English, French and Italian summaries.] **1979**

In 8 of 12 yearling cattle inoculated with smallpox virus, there was a rise of 16% in the blood cholesterol ester content within 4 days. In the remaining 4 there was a drop of 40% total blood cholesterol within 10–14 days.

—W. G. SILLER.

GINSBERG, H. S. (1954). **Formation of non-infectious influenza virus in mouse lungs: its dependence upon extensive pulmonary consolidation initiated by the viral inoculum.** —*J. exp. Med.* **100,** 581-603. [Author's summary modified.] **1980**

G. investigated the formation of non-infectious virus particles which occurred when large doses ($10^{6\cdot5}$–$10^{8\cdot5}$ "embryo infectious doses") of certain strains of influenza virus were inoculated intranasally into mice. The only strains which were found to produce non-infectious particles were those which brought about extensive pulmonary consolidation, and it seemed that the proportion of non-infectious particles produced depended on the extent of cell damage caused. Most of the non-infectious particles developed in the initial cycle of multiplication, and with the formation of non-infectious virus there was a corresponding decrease in the number of infectious particles. Non-infectious virus could not be propagated on serial passage in mouse lungs: on second lung passage only fully infectious virus was detectable. The formation of the non-infectious viral form was not the result of interference with synthesis of infectious virus by inactivated virus in the inoculum; for inoculation of heated infected allantoic fluid which contained more than 99% of non-infectious virus did not result in the development of new non-infectious virus. Although inoculation of a large quantity of virus resulted in infection which yielded a relatively low titre of infectious and high titre of non-infectious virus, inoculation of a small quantity of the agent resulted in a high yield of infectious virus and no non-infectious virus that was detectable. In both instances the total quantity of antigenic viral material synthesized in the mouse lungs was the same. These data do not support the hypothesis that the non-infectious virus formed consisted of immature or incomplete viral particles, but suggested instead that non-infectious virus is inactivated virus or some aberrant form of the agent.

PARNAS, J. (1954). Rapport sur la réalisation des étapes 1 et 2 des recherches sur le virus de la grippe du porc dans les exploitations agraires d'Etat. **[Swine influenza in Poland.]** —*Bull. Off. int. Epiz.* **41,** 207-210. **1981**

P. outlined the results of two series of studies of swine influenza in Poland. In the first series 8 strains of virus were isolated and, it is claimed, were identified as Newcastle disease virus. In the second series, a virus designated G_1 was isolated having the following characteristics:—growth in chicken embryos; haemagglutination; haemagglutination inhibition (H.I) with the serum of affected pigs and with that of hyperimmunized rabbits; absence of H.I. reaction with Newcastle disease virus. Serologically it resembled Shope's virus most closely. It was pathogenic for mice and pigs. Further research is planned.—G. V. LAUGIER.

I. KISSLING, R. E., CHAMBERLAIN, R. W., EIDSON, M. E., SIKES, R. K. & BUCCA, M. A. (1954). **Studies on the North American arthropod-borne encephalitides. II. Eastern equine encephalitis in horses.**—*Amer. J. Hyg.* **60,** 237-250. [Authors' summary modified. For part I, see *V.B.* **25,** 1653.] **1982**

II. KISSLING, R. E., CHAMBERLAIN, R. W., SIKES, R. K. & EIDSON, M. E. (1954). **Studies on the North American arthropod-borne encephalitides. III. Eastern equine encephalitis in wild birds.** — *Ibid.* 251-265. **1983**

I. The authors made a quantitative study of eastern equine encephalitis (EEE) virus in the blood of horses infected by subcutaneous inoculation or by the bites of infected mosquitoes. They demonstrated maximum virus titres ranging from $10^{0.5}$ to $10^{4.5}$. Periods of viraemia varied from 24 to 66 hours in individual horses.

The s/c inoculation of as little as $10^{2.2}$ LD_{50} produced serological responses, although lethal infections were not produced by less than $10^{3.3}$ LD_{50}. The neutralizing antibody response was rapid, but EEE complement-fixing antibodies could not be demonstrated except for a low-grade titer in two consecutive bleedings from two horses approx. one month after inoculation.

No differences could be detected in responses to infection produced by the two modes of inoculation. Both methods produced infections ranging in severity from fatal cases to cases of a subclinical nature.

The authors were unable to transmit EEE infection from horse to horse by means of *Aedes aegypti*. They discussed the significance of the horse in perpetuating an epizootic of EEE.

Finding that more virus could be recovered from the thalamus and basal ganglia than from other brain areas, they suggested that these portions be used for attempting isolation of EEE virus from field equine cases.

II. The authors presented the results of a serological survey on the presence of Eastern equine encephalitis (EEE) virus in wild birds collected in Louisiana in 1950.

In laboratory experiments the white ibis, American egret, snowy egret, purple grackle, red-winged blackbird, cardinal, sparrow and cedar waxwing were all found to be susceptible to EEE infection. No differences in the course of the disease were noted between infections caused by subcutaneous inoculation and those caused by the bite of infected mosquitoes.

In the first four species mentioned, infections were subclinical, whereas in the other species the disease was almost always fatal.

The authors noted viraemias resulting from infection and antibody responses in surviving birds. They effected bird-to-bird transmissions by mosquito bites in the ibis and red-winged blackbirds.

Virus concentrations in the infected ibis and egrets were not high enough for the transmission of infection by *A. aegypti* mosquitoes. In other birds, however, infection was more severe, and near the optimum level for mosquito infection.

There was evidence that infection is extraneural and that the liver may be the primary site of EEE infection in birds. The authors discussed their findings.

SUGAWA, Y. (1953). **Histo-pathological studies on the horses artificially infected with the virus of Japanese B equine encephalitis.**—*Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27. pp. 1-12. [In Japanese and English.] **1984**

Twelve horses vaccinated with a formol killed Japanese B equine encephalitis virus vaccine, prepared from infected mouse brain, succumbed to an intracerebral challenge with infected mouse brain emulsion, and all showed pathological changes similar to those in the unvaccinated controls. In a second experiment, 2 out of 5 vaccinated and one hyperimmunized horse survived the challenge. The lesions in the c.n.s. were slight in 2 which succumbed and were still demonstrable in the survivors when slaughtered up to 262 days after the challenge. —A. ACKROYD.

REAGAN, R. L., DELAHA, E. C. & BRUECKNER, A. L. (1954). **Response of the cave bat (*Myotus lucifugus*) to the "B" virus.**—*Amer. J. vet. Res.* **15,** 647-648. **1985**

The authors showed the cave bat (*M. lucifugus*) to be susceptible to "B" virus [a virus

pathogenic for rabbits isolated in 1932 from a human being] by intracerebral inoculation. Cave bats inoculated with the virus by other routes did not develop symptoms. [The authors have also demonstrated the susceptibility of this animal to the viruses of rabies and poliomyelitis—see *V.B.* **25,** 86 & 671.]—R.M.

SULKIN, S. E., WISSEMAN, C. L., JR., IZUMI, E. M. & ZARAFONETIS, C. (1955). **Mites as possible vectors or reservoirs of equine encephalitis in Texas.**—*Amer. J. trop. Med. Hyg.* **4,** 119-135. [Authors' summary modified.] **1986**

The authors summarized the results of field and laboratory studies designed to determine the role of mites as possible vectors or reservoirs of Western equine encephalomyelitis. They concluded that although occasionally fowl mites or wild bird mites are found to be naturally infected with this virus they play no essential role in the epidemiology of the disease. The demonstration of the Western equine virus in mites of fowls and of wild birds may be significant only as an indication that they have recently fed on infected fowls or wild birds. They listed 35 references.

ISHII, S., ISHITANI, R. & ISHIHARA, T. (1953.) **Further observations on the blood film fixation for the detection of siderocyte in equine infectious anemia.** — *Exp. Rep. Govt. exp. Sta. Anim. Hyg., Japan.* No. 27, pp. 19-36. [In Japanese and English.] **1987**

In concentrated jugular vein blood films from horses infected with equine infectious anaemia in its chronic or afebrile form, siderocytes could be detected more easily if the films were fixed with formalin gas rather than with methanol prior to Perl's blue staining. Ehrlich's heating method, osmic acid or methanol gas fixation were as satisfactory as formalin gas fixation, but ethanol, acetone or ether fixation was not. With blood obtained from the liver or vena cava, the method of fixing the blood film did not affect the siderocyte detection.

—A. ACKROYD.

ISHII, S., TABUCHI, E. & KATADA, M. (1953). **Morphological observation of the virus of equine infectious anemia by electron microscope.** — *Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27, pp. 13-18. [In Japanese and English.] **1988**

The authors described a method for the purification of the virus of equine infectious anaemia from the serum and urine of infected horses, using the Spinco ultracentrifuge. Round particles of 20–50 mμ could be detected with the electron microscope in all the specimens.

—A. ACKROYD.

V. SPROCKHOFF, H. (1954). Untersuchungen über die Komplementbindungsreaktion bei der Borna'schen Krankheit. **[The complement-fixation test in Borna disease.]** — *Zbl. VetMed.* **1,** 494-503. [English, French and Spanish summaries.] **1989**

Numerous complement - fixing antigens were produced from brain tissue of rabbits which had been infected with the virus of Borna disease. When these antigens were tested with sera of infected rabbits, c.f. titres of up to 1:256 were obtained and the test was found to be specific.—W. G. SILLER.

OMORI, T., ISHII, S. & HARADA, K. (1953). **Studies on the disease of cattle caused by a psittacosis lymphogranuloma group viruses (Miyagawanella). I. Immunology and pathogenicity of Kyushu virus.**—*Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27. pp. 45-54. [In Japanese and English.] **1990**

ISHITANI, R. & KIUCHI, M. (1953). **Studies on the disease of cattle caused by a psittacosis lymphogranuloma group viruses (Miyagawanella). II. Histopathological observation on the lungs of mice infected with the virus.** —*Ibid.* pp. 55-62. [In Japanese and English.] **1991**

ISHITANI, R., SUGAWA, Y. & MOCHIZUKI, H. (1953). **Studies on the disease of cattle caused by a psittacosis lymphogranuloma group viruses (Miyagawanella). III. Histological comparison between the cases artificially infected with the virus and bovine epizootic fever.**—*Ibid.* pp. 63-74. [In Japanese and English.] **1992**

I. A psittacosis lymphogranuloma-like virus was isolated by mouse and chick embryo passage methods from cattle affected with a type of bovine epizootic fever. It was immunologically different from the Kitasato virus, but cross complement-fixation tests were positive between this virus, named the Kyushu virus, and the caprine pneumonitis virus isolated from goats. Both these viruses, inoculated intratracheally, produced similar symptoms and lesions in cattle and goats, and inoculated intraperitoneally, were highly pathogenic for g. pigs, whilst the staining character and location of the inclusion bodies in the cells of infected mice and cattle were similar. Under the electron microscope, the Kyushu virus was 300–800 mμ in diameter.

II. In mice, intranasal inoculation of the Kyushu virus produced a broncho-pneumonia. Severe haemorrhage, oedema, bronchitis and intra- and severe inter-alveolitis were observed as well as perivascular cuffing and peribronchitis. Basophile inclusion bodies of varying size and shape were detected in the epithelial cells of the bronchioli, and in the mononuclear cells and neutrophile leucocytes. These histopathological findings resemble those produced by the Doschez - Gordon - Gönnert type of pneumotropic virus.

III. The pathological findings in the c.n.s., lungs and other organs of cattle infected, naturally or artifically, with so-called bovine epizootic fever were similar to those in cattle infected with the Kyushu virus, except that basophile inclusion bodies could be detected in mononuclear cells in the lungs and spleen of the latter.—A. Ackroyd.

Hammer, D. (1954). Die Enteritis gravis des Rindes. **[Acute infectious enteritis in cattle.]** —*Dtsch. tierärztl. Wschr.* **61,** 378-382. **1993**

H. reported infectious enteritis as common among cattle in Südbaden in the summer of 1953, appearing either in a mild form, or as an acute infection leading to death. P.M. examination revealed enteritis with haemorrhagic oedema. He suggested that the cause might be a virus. *Clostridium welchii* was isolated from the intestine, liver, and sometimes the skeletal muscles.—A.S.

Sigurdsson, B. (1954). **Maedi, a slow progressive pneumonia of sheep: an epizoological and a pathological study.**—*Brit. vet. J.* **110,** 255-270. **1994**

[See also *V.B.* **21,** 164; **22,** 3489; **24,** 1108.] The annual mortality rate may be 20% on infected farms. Symptoms include hypochromic anaemia and leucocytosis. The lungs increase 2–4 times in weight. No infective agent has been demonstrated, but contact transmission experiments were successful. Clinical incubation takes 1–3 years, but typical microscopic lesions were observed within 30–90 days of exposure to infection.—C. C. Bannatyne.

Sigurdsson, B. (1954). **Rida a chronic encephalitis of sheep with general remarks on infections which develop slowly and some of their special characteristics.** — *Brit. vet. J.* **110,** 341-354. **1995**

"Rida" (ataxia or tremor) is a slow fatal virus infection of sheep in Iceland. Incubation to the clinical stage takes 8–18 months, but the white cell count in the c.s.f. increases from about a month after exposure to the infection and this is a valuable aid to early diagnosis. Lesions are confined to the c.n.s. An insect vector may be implicated. The disease is enzootic in the north: sporadic cases in the south may not be identical. Identity with scrapie cannot be ruled out.—C. C. Bannatyne.

Ishii, S., Kawakami, Y. & Fukuhara, S. (1953). **Pustular dermatitis of sheep and goat. I. The property of the causative agent.** — *Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27. pp. 141-150. [In Japanese and English.] **1996**

The causative agent of a pustular dermatitis which has been observed during recent years in Japan on the lip and nose of sheep and goats, passed through a Berkefeld V filter but could not be grown in chick embryos. The disease could be transmitted by lip inoculation with scab emulsion to sheep, goats, cattle and rabbits, but not to horses, pigs, dogs, or g. pigs. No intracellular inclusion bodies could be detected in the lesions, but elementary bodies, ellipsoidal in shape and 200–250 mμ in diameter, were detected with the electron microscope in smears of pustular material. After infection, animals were immune to further infection for at least 3 months.—A. Ackroyd.

Omori, T., Ishii, S., Harada, K., Ichikawa, O., Murase, N., Katada, M. & Araumi, W. (1953). **Study on an infectious pneumonia of goat caused by a virus. I. Isolation of the causative agent and its characteristics.**— *Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27, pp. 101-119. [In Japanese and English.] **1997**

Ishitani, R., Sugawa, Y., Mochizuki, H. & Shibata, D. (1953). **Study of an infectious pneumonia of goat caused by a virus. II. Pathological observation on the naturally infected cases.**—*Ibid.* pp. 121-130. [In Japanese and English.] **1998**

Ishitani, R., Sugawa, Y., Shibata, D. & Omori, T. (1953). **Study on an infectious pneumonia of goat caused by a virus. III. Pathological observation on artificially infected goat.**—*Ibid.* pp. 131-139. [In Japanese and English.] **1999**

I. The pathogenic agent of an infectious non-purulent pneumonia of goats passed through a Berkefeld type W filter and could be readily propagated in the yolk sac of chick embryos. Intratracheal inoculation of infected yolk sac produced in goats mild clinical symptoms and pneumonic lesions which tended to become chronic, but if secondary bacterial invasion occurred, the mortality rate became high. Infected goats developed a specific complement-fixing antibody. Elementary bodies of 300–400 mμ were

observed in infected yolk sac smears. The agent was pathogenic for horses, cattle, pigs, dogs, rabbits, g. pigs, hamsters, mice and fowls.

II. In the lungs of naturally infected goats, the authors observed congestion, haemorrhage, oedema and infiltration with neutrophile leucocytes and mononuclear cells in the alveolar septa, alveoli and bronchioli, but no abscess formation. Interalveolitis and peribronchitis were prominent features and there was marked proliferation of the mesenchymal cells of the alveolar septa and of the epithelial cells of the alveoli. Intracellular inclusion bodies were detected in the bronchial epithelial cells and in the mononuclear cells. Histopathological changes were also observed in the spleen, liver, kidney, and brain.

III. The histopathological changes observed in experimentally infected goats were similar to those in naturally infected goats except that the interalveolitis was more localized in the latter.—A. Ackroyd.

Young, G. A., Kitchell, R. L., Luedke, A. J. & Sautter, J. H. (1955). **The effect of viral and other infections of the dam on fetal development in swine. I. Modified live hog cholera viruses — immunological, virological, and gross pathological studies.**—*J. Amer. vet. med. Ass.* **126**, 165-171. [Authors' summary modified.] **2000**

Oedema of new-born piglets and a variety of abnormalities were experimentally produced by injection of pregnant sows or gilts with rabbit-modified swine fever viruses with or without immune serum, 10–16 days after service. Abnormalities occurred in 38% of the foetuses of 24 litters from the experimentally injected dams as compared with 3% abnormalities among 16 control litters.

Serological tests eliminated leptospirosis as a primary or associated agent in the experimentally produced abnormalities. Swine fever virus originating from rabbit-modified swine fever virus of porcine origin and virulent enough to cause death in 12-day-old susceptible test pigs was isolated from the spleen in 6 of 10 foetuses from four litters. Virus was not demonstrable in the spleen of the dams.

Sokol, A., Rosocha, J. & Dalloš, V. (1954). Účinok ultrazvuku na obrnový mozgomiechový materiál a imunogénna hodnota ozvučenej adsorbátovej vakcíny nákazlivej obrny ošípaných. [**The effect of ultrasonic waves on brain-cord material from pigs with Teschen disease and the value of adsorbate vaccine treated with ultrasonic waves.**]—*Vet. Čas.* **3**, 77-99. [In Slovak. German and Russian summaries.] **2001**

Twenty-five pigs weighing 10–14 kg. were used for the evaluation of Teschen disease vaccines prepared from infected cerebrospinal material stored for eight months at −45°C. The vaccines, prepared from a 10% suspension of material exposed to the action of ultrasonic waves for 7·5 and 15 min. respectively, were compared with vaccine prepared from material from the same source but not treated with u.s. waves, and also with a commercial adsorbed aluminium hydroxide vaccine.

The pigs were divided into five groups of five. Groups I and II were given one subcutaneous dose of 5 ml. of vaccine prepared from material treated for 7·5 and 15 min. repectively. One pig of group I died, one day after vaccination, from a haemorrhagic form of meningitis, the agent of which, it was stated, could not be determined. A pig of group II died from swine erysipelas 22 days after vaccination. The remainder of the pigs in these two groups proved immune to subsequent intracerebral infection with live virus. Group III were given 0·5 ml. of the commercial vaccine subcutaneously and all except 2 developed the disease, following intracerebral infection. Group IV were injected intracerebrally with a vaccine prepared from the stored material which had not been exposed to u.s. waves. Four succumbed to subsequent intracerebral infection and one died from cerebral haemorrhage resulting from vaccination. Group V were injected intracerebrally with vaccine treated with u.s. waves. All but one developed the disease on subsequent challenge. The incubation periods in groups IV and V were markedly increased.

—E.G.

Gorchakov, V. G. (1954). [**Blood transfusion as means of treating broncho-pneumonia in piglets and for stimulating growth.**] —*Veterinariya, Moscow.* **31**, No. 11, pp. 49-52. [In Russian.] **2002**

The loss of piglets through broncho-pneumonia, which was as high as 9·7%, could be eliminated by intramuscular injections of blood from healthy young pigs, which stimulated the defence mechanisms of the body. The average weight increase of the treated piglets was much higher than that of untreated controls. Piglets 3–4 weeks old received 1 ml. per 5 kg. live weight, piglets 4 months old 1 ml. per 10 kg. Pigs, 8–10 months old, from healthy herds are used as donors. The citrated blood must not be kept longer than 4 days.

—A. Mayr-Harting.

Ivanov, X. (1951). **[Ulcerative lesions in the preputial cavity of pigs and their aetiology.]** —*Izv. Inst. eksp. vet. Med., Sofia.* **1,** pp. 42-56. [In Bulgarian. Russian summary.] **2003**

Inside the prepuce of pigs there often appear rounded bodies, silvery-white or greyish-yellow, up to 8 mm. in diameter, formed of epithelial tissue, with severe hyperkeratosis, para-keratosis and well established acanthosis. Necrosis of the central parts of these bodies quickly occurs with formation of shallow ulcers. Sometimes pox-like vesicles or pustules are formed. In this state only slight hyperaemia is observed and occasionally a slight cellular or eosinophilic infiltration. Finally a leucocytic belt of variable thickness and consistency is formed, gradually disappearing.

Dimitrov (1943) and Feller & Beller (1928) stated that they found such lesions only in pigs that had died from swine fever (20 cases out of 200 investigated); but David & Schwartz (1930) and Cherryak & Bendinger (1932) stated that they had found such ulcerative lesions in 40–70% of healthy pigs.

The author investigated 242 male pigs, some castrated, and found characteristic changes in 8 out of 11 which had died from swine fever and in 77 of the remaining 231 pigs.—F. A. Abbey.

Jacotot, H. & Vallée, A. (1953). Un foyer de myxome infectieux chez des lapins de garenne dans la région de Rambouillet. **[A spontaneous outbreak of myxomatosis in wild rabbits in France.]**—*Ann. Inst. Pasteur.* **84,** 448-450. **2004**

The authors diagnosed infectious myxomatosis in wild rabbits in France in October 1952. The epidemiology remains obscure.

They succeeded also in passaging virulent material on the chorio-allantois of embryonated eggs.—J.D.

Pontieri, G. & Chaumont, L. (1954). Action de divers antiseptiques sur le virus du fibrome de Shope. **[Action of antiseptics on the Shope's fibroma virus.]** — *Ann. Inst. Pasteur.* **86,** 532-534. **2005**

The authors compared the resistance of two strains of Shope's fibroma virus to a number of antiseptics, including alcohol, ether and trichloracetic acid. After exposure to the antiseptics samples of virus were inoculated intradermally into rabbits, and the nature of the lesions produced after 10 days was taken as a measure of the effects of the antiseptics.—A.S.

Kawashima, H., Sato, T. & Hanaki, T. (1953). **The latest outbreak of Newcastle disease in Japan.**—*Exp. Rep. Govt exp. Sta. Anim. Hyg., Japan.* No. 27. pp. 151-167. [In Japanese and English.] **2006**

A mild infectious disease of fowls which occurred in Japan in 1951 was identified as being due to the Newcastle disease virus. Affected birds had diarrhoea, the droppings being greenish, and repiratory and nervous symptoms, but the mortality rate was only about 5%. Only a severe catarrhal enteritis and haemorrhage in the egg follicles were found at P.M. examination. Epidemiologically symptomatologically, and pathologically, this form of the disease appears to be similar to a type of Newcastle disease reported in the U.S.A.

—A. Ackroyd.

Biswal, G. & Morrill, C. C. (1954). **The pathology of the reproductive tract of laying pullets affected with Newcastle disease.**—*Poult. Sci.* **33,** 880-897. **2007**

The authors followed the course of Newcastle disease in 48 artificially infected fowls. They killed groups of 4–5 infected birds together with one or two controls at intervals up to 56 days after infection, and noted in detail the pathology of the reproductive tract. They also recorded body wt., egg quality and various symptoms in the live birds.

They commented that the lesions in 6 naturally infected birds which they examined were more severe than those in the experimental birds.—A.S.

Reagan, R. L., Delaha, E. C., Cook, S. R. & Brueckner, A. L. (1954). **The response of kittens to three strains of Newcastle disease virus.** — *Vet. Med.* **49,** 488-489. [Authors' summary modified.] **2008**

[See also *V.B.* **25,** 1668.] The authors found that kittens, 2 weeks old were susceptible to intracerebral inoculation with the California, Colorado and Kentucky strains of Newcastle disease virus. The California strain was the most virulent and the Colorado strain the least virulent. They showed by neutralization tests on allanto-amniotic fluid from eggs inoculated with kitten brain suspensions that the agents were Newcastle disease viruses. A group of control kittens remained in good health.

I. Murray, M. J., Cable, J. V. & Keeling, J. (1954). **Psittacosis. Report on three cases in New Zealand.**—*N. Z. med. J.* **53,** 107-109. **2009**

II. Jeffery, I. J. (1954). **Some public health aspects of a recent outbreak of psittacosis in New Zealand.**—*Ibid.* 368-372. **2010**

III. Fastier, L. B. & Austin, F. J. (1954). **Psittacosis among Australian parrots imported into New Zealand.** — *Ibid.* 373-379. **2011**

I. An account of psittacosis in a port veterinary officer, a zoo attendant and a parakeet owner in New Zealand, resulting from handling of psittacines, recently imported from Australia. All three responded to parenteral penicillin treatment. The authors welcomed the reintroduction of the ban on the import of these birds, which was lifted in 1951.

II. J. discussed four further cases of psittacosis in man, originating from the same source. He considered the maintenance of the import ban on such birds to be justified.

III. Mortality rate in imported Australian parrots kept in aviaries in New Zealand was very high. Clinical features included soiling of tail feathers with sulphur-coloured faeces and atrophy of the pectoral muscles resulting in protrusion of the bony keel. P.M., the gut was distended by fluid, and the liver and spleen of a brittle consistency, the latter usually being very much enlarged. Diagnosis of psittacosis was confirmed by isolation of the virus from the viscera and by serological methods.—E.G.

Andrianne, V. F. (1954). Sur une petite épizootie meurtrière de psittacose (ornithose) parmi des psittacidés. **[An outbreak of psittacosis in parrots in Belgium.]**—*Ann. Méd. vét.* **97,** 15-21. **2012**

The author described the lesions in 8 parrots which had died from psittacosis.—A.S.

Williams, R. C. & Fraser, D. (1953). **Morphology of the seven T-bacteriophages.**—*J. Bact.* **66,** 458-464. **2013**

Electron microscopy of freeze-dried and air-dried preparations of bacteriophage revealed distortion of the air-dried preparations.

All seven phages appeared hexagonal in contour when freeze-dried, the even-numbered phages being morphologically indistinguishable. The authors gave tables showing dimensions of the various phages after air-drying and after freeze-drying; they considered the latter to be more reliable than previous estimates from air-dried material.—A. Seaman.

Puck, T. T. & Lee, H. H. (1954). **Mechanism of cell wall penetration by viruses. I. An increase in host cell permeability induced by bacteriophage infection.**—*J. exp. Med.* **99,** 481-494. **2014**

Leakage of radio-active phosphorus and radio-active sulphur from *Bact. coli* cells labelled with ^{32}P and ^{35}S and treated with phages T_1 and T_2 was shown to be composed of small contributions from the majority of the bacterial cells and resulted from infection of a bacterial cell by a single particle of virus. The leakage was complete within a few min. at 37°C., did not contain desoxyribonucleic acid and was inhibited by magnesium at 0·025 molar concentration.—A. Seaman.

Fischer, G., Gardell, S. & Jorpes, E. (1954). Über die chemische Natur des Acerins und die viruziden und antivirotischen Effekte einiger pflanzlicher Tannine. **[The chemical nature of acerin, an extract of the fruit of the maple tree (*Acer platanoides*), and the action of some plant tannins against viruses.]** — *Zbl. Bakt. I.* (*Orig.*) **161,** 349-353. [English and French summaries.] **2015**

Acerin, like numerous other plant tannins, has a viricidal but not bactericidal action even in low concentrations. The tannin acts on the extracellular phage particles and so undesirable phage may be removed from a culture of *Bact. coli*.—W. G. Siller.

Herzberg, K. & Bommer, W. (1953). Vaccinevirus und Kanarienpockenvirus im Phasenkontrastbild. **[Phase-contrast microscopy of vaccinia and canary pox viruses.]** — *Arch. ges. Virusforsch.* **5,** 264-276. [In German.] **2016**

A detailed account of a method by which unfixed vaccinia and canary pox elementary bodies may be examined among living cells under the phase contrast microscope. The elementary bodies are subsequently identified by examination of the same field following staining with victoria blue. Canary pox preparations were obtained from the subcutaneous oedema fluid of artificially infected canaries and vaccinia preparations from infected chorioallantoic membranes.—W. G. Siller.

Polley, J. R. (1955). **Factors influencing the formaldehyde treatment of viral antigens.**—*Canad. J. Microbiol.* **1,** 256-261. **2017**

Stable, lyophilized, non-infective viral antigens were prepared by use of formol. Stability was influenced by the pH, the suspending medium, formaldehyde concentration and temperature of treatment. Details of the method of preparation were given.

—R. Gwatkin.

Klarenbeek, A. & van Tongeren, H. A. E. (1954). **Viricidal action of ethylene oxide gas.**—*J. Hyg., Camb.* **52,** 525-528. [Authors' summary modified.] **2018**

Investigation of the viricidal effect of a

mixture of ethylene oxide and carbon dioxide on Columbia SK and vaccinia viruses, yielded favourable results. Since ethylene oxide also exerts a germicidal effect, it offers simple and inexpensive disinfection of certain materials, especially those of low thermostability.

HAIG, D. A., ALEXANDER, R. A. & WEISS, K. E. (1954). **Treatment of heartwater with terramycin.**—*J. S. Afr. vet. med. Ass.* **25,** 45-48. [Authors' summary modified.] **2019**

Terramycin soluble tablets were found to be effective in the treatment of sheep infected with heartwater. The minimum effective dose administered as a single i/v inj. was found to be approx. 2·5 mg. per lb. body wt.

When the drug was administered i/m it was effective in considerably smaller doses; a single inj. of 1·0 mg. per lb. was as satisfactory in the treatment of both cattle and sheep as repeated doses of larger amounts. The authors suggested that delayed absorption is responsible for the increased effectiveness.

In all treated sheep it was noticed that there was a delay of from 24 to 28 hours after treatment before the temperature of infected animals returned to normal. The habitus of the animal is of prime importance when deciding whether it is necessary to repeat treatment during the later transient febrile reaction.

As none of the animals treated intramuscularly died, local muscular reaction to injections of terramycin could not be examined.

A further point has been brought out during these studies on the chemotherapy of heartwater. Particularly in those cases where, from force of circumstances, treatment by the parenteral administration of antibiotics is delayed and it is necessary to repeat treatment, the further development of the disease may be arrested but the animal does not return to a state of good health. In such cases the incidence of acute or chronic atony of the fore-stomachs must be borne in mind and further treatment with readily available carbohydrate together with acidification of the ruminal contents instituted.

CANCELLIERI, D. (1954). Endemia di febbre Q per contagio da bovina in parto. **[Q fever in man resulting from assistance during calving.]** — *Vet. Ital.* **5,** 309-313. [English, French and German summaries.] **2020**

An account of an outbreak of *Rickettsia burneti* infection involving 14 members of two families, 8 of whom had assisted at the calving of a cow. The blood serum of the cow gave a positive reaction in the complement-fixation test (1:32) and the human patients were reactors in dilutions ranging from 1:16 to 1:256. —I. MARTINI.

ANON. (1953/54). **Map of world distribution of rickettsial diseases: Plate 10. Louse-borne and flea-borne typhus. Plate 11. Tick-borne and mite-borne forms. Plate 12. Tick and mite vectors.** pp. 16, 25 & 20. New York: American Geographical Society. $1.25 folded; $1.50 flat. **2021**

These three maps show, respectively, the world distribution of (1) louse- and flea-borne typhus; (2) tick- and mite-borne rickettsial diseases including typhus, Q-fever and rickettsialpox; and (3), the tick and mite vectors of rickettsial disease.

The first two bear insets giving essential information on epidemiology, and the third is accompanied by some general notes, a résumé of essential natural history, and a table giving information on a number of species, not entered on the map, which are occasional carriers or experimental vectors, but which have not been shown to transmit infection to man.

On the reverse side of each of the maps are given the basic sources of information used, and selected bibliographies listed under countries of origin.—A.S.

See also absts. **1902** (phages of *S. typhi murium*); **1949** (Newcastle disease and chronic respiratory disease); **2079-2081** (Rous sarcoma virus); **2227** (report, Canada); **2231** (book, microbiology); **2234** (book, equine infectious anaemia).

IMMUNITY

MUKERJI, A. (1951). **Influence of solar radiation on immunity.**—*Indian J. Vet. Sci.* **21,** 125-136 & 137-169. **2022**

Sera of rabbits hyperimmunized with staphylococcus toxoid and of hill bulls, buffaloes and goats immunized against rinderpest while these animals were exposed to the sun, gave a lower antitoxin and antibody titre respectively than sera from animals kept in the shade during immunization.—K. C. SINHA.

LEONOV, N. E. (1954). **[False deductions. A criticism of S. N. Muromtsev's book: "The inconstant nature of micro-organisms and problems of immunity".]** — *Veterinariya, Moscow.* **31,** No. 8, pp. 53-57. [In Russian.] **2023**

There are two main points of disagreement between the author and Muromtsev. (1) Muromtsev believed that, with few exceptions, living vaccine strains are not attenuated strains

of the particular species concerned but differ from it sufficiently to be regarded as belonging to another species. This, in L.'s opinion, would invalidate the concept of the specific character of immunity. (2) Muromtsev advocated a number of killed vaccines and expressed the belief that, under modern methods of vaccine production, such vaccines are sterile. In L.'s opinion, really sterile vaccines are entirely useless; but most vaccines regarded as killed contain living organisms which may regenerate *in vitro* and probably do so more easily *in vivo*. He emphasized the "non-sterile" nature of immunity. [Besides the amount of venom spent in this dispute, what seems most striking to us is the reference to extra-bacteriological theories. Each school of thought regards its own views as the only true "materialistic" ones, Muromtsev quoting as his authority Lysenko, the author citing Michurin. Ehrlich is said to have held "idealistic" views on immunity.]

—A. MAYR-HARTING.

FELTON, L. D., KAUFFMANN, G., PRESCOTT, B. & OTTINGER, B. (1955). **Studies on the mechanism of the immunological paralysis induced in mice by pneumococcal polysaccharides.** — *J. Immunol.* **74,** 17 - 26. [Authors' summary slightly modified.] **2024**

The authors defined immunological "paralysis" as that condition produced in the host by an antigen given in such amount that a subsequent immunizing dose fails to stimulate active immunity.

With the preparations of pneumococcal polysaccharide used in C_3H mice the amounts included: for type I, 500 μg. or more, and for types II and III, 50 μg. or more. In white mice, one-tenth of these doses was sufficient to "paralyse" the defence. In both strains of mice, smaller amounts immunized the animal.

The type-specific immunological paralysis persisted for at least 15 months following a single injection with type I or III polysaccharide and for 18 months with type II polysaccharide.

For all three types studied, the reaction was essentially type-specific.

Immunological paralysis was produced by 500 μg. of type I polysaccharide by intraperitoneal, intravenous, or intradermal administration; but by the oral route the largest dose given, 50 mg., immunized the mouse. For types II and III the 50 μg. dose "paralysed" the defence whether introduced intraperitoneally, intravenously, or intradermally; orally 5·0 mg. immunized against type II, but not against type III infection. By the subcutaneous route the "paralysing" dose of 50 μg. was the same for all three types.

Repeated daily doses of smaller amounts "paralysed" the defence when the total reached the above doses. With type I, this "paralysis" was not found in all mice; but with types II and III all mice so injected were unable to respond to a subsequent immunizing dose.

Mice which had been previously immunized required 4 times as much antigenic polysaccharide to produce immunological paralysis as was required by normal mice.

"Paralysed" mice were found to be hypersusceptible to pneumococcus infection and required 2–4 times as much antibody to give passive protection as normal animals.

The only successful means found for counteracting the "paralysis" in mice was the use of whole-cell vaccine, and this was applicable only to type I but not to types II and III.

I. PARISH, H. J. (1954). **Discussion on combined immunization. Combined prophylactics.**—*Proc. R. Soc. Med.* **47,** 351-352. **2025**

II. BARR, M. (1954). **Discussion on combined immunization. Some immunological considerations.**—*Ibid.* 352-354. **2026**

III. UNGAR, J. (1954). **Discussion on combined immunization.**—*Ibid.* 355-357. **2027**

IV. BUTLER, N. R. (1954). **Discussion on combined immunization. Clinical aspect.**—*Ibid.* 357-360. **2028**

I. The use of combined prophylactics reduces the number of injections required for immunization. When properly prepared, antigenic efficiency is not diminished. Examples are given.

II. B. gave examples of the dosage of a combined preparation and the proportions of its components affecting the immunity produced. Persons or animals may have a pre-existing immunity to one component of the prophylactic.

III. The primary stimulus in passively immunized g. pigs induces a state of latent responsiveness (basic immunity). The secondary stimulus (booster dose) 8 weeks later produces a rapid, profuse outburst of antibodies in the body fluids.

IV. In babies immunized in the first 3 months of life with fluid combined diphtheria-whooping cough prophylactics, reactions are negligible and the risk of post-immunization poliomyelitis is less than when immunization is done at a later age. A boosting dose must be given at one year.—W. R. BETT.

Goret, P., Joubert, L. & Grosset, J. (1954). Recherches expérimentales sur les pouvoirs "sensibilisant" et "déchainant" du plasma de boeuf "despécifié". [**Antigenic properties of ox serum treated with formol.**] — *Rev. Path. comp.* **54,** 1261-1274. [English and Spanish summaries.] Discussion: pp. 1274-1276. **2029**

Experiments showed that ox serum treated with formol, ammonia and heat retained some specific antigenicity. However, the authors considered that, in view of the severity of the tests, these results should not prove an obstacle to the use of denatured serum as a substitute for blood for transfusion and perfusion in man. —T. E. Gatt Rutter.

Polani, P. E. (1954). **Experimental haemolytic anaemia in the albino rat: neurological aspects.** — *J. Path. Bact.* **68,** 109-120. [Author's summary modified.] **2030**

A number of albino rats injected s/c with anti-rat haemolytic serum developed histopathological changes in the cerebral cortex, basal ganglia, brain stem and cerebellum; extensive hepatic necrosis also developed. P. concluded that the brain lesions were probably secondary to hepatic damage.

See also absts. **1856** (demonstration of streptococcal antibody); **1953** (maternal transfer of trypanosome antibodies); **2125** (allergic encephalomyelitis).

PARASITES IN RELATION TO DISEASE [GENERAL]

Davies, S. F. M. & Joyner, L. P. (1955). **Observations on the parasitology of deep litter in poultry houses.**—*Vet. Rec.* **67,** 193-199. [Authors' summary modified.] **2031**

The authors determined the number of parasites, moisture content, *p*H, titratable alkali and total ammonia in samples taken from 12 different deep-litter units. They found that large numbers of parasite ova and oocysts are present when the moisture content of the litter is high. Inefficient drinking appliances and the use of long straw were the commonest causes of accumulations of excess moisture.

The significance of free ammonia can be assessed only indirectly, but the evidence so far available indicates that it is of minor importance in limiting the numbers of parasites.

They recorded a seasonal variation in the litter moisture content and in the coccidial oocyst population. Large numbers of oocysts were present when moisture contents were highest during the winter months from November to February.

Temperatures attained in the depth of the litter in open pens are not sufficient to eliminate oocysts and ova and may even favour their development.

When samples of active litter containing viable oocysts were packed into a vacuum flask the numbers of oocysts were sufficiently reduced by the heat generated within the litter. The authors recorded temperature curves obtained under these conditions from two types of litter.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

Hoffman, R. A. (1954). **The effectiveness and limitations of homemade self-treatment rubbing devices for louse control on cattle.**—*J. econ. Ent.* **47,** 1152-1153. **2032**

The self-application method described by H. [*V.B.* **25,** 1058] was of some practical value for the control of lice on cattle, but was not considered a satisfactory substitute for spraying or dipping.—T. E. Gatt Rutter.

Dun, R. B. (1954). **A comparison between the radical Mules operation and the modified Mules operation.**—*Agric. Gaz. N. S. W.* **65,** 124-129. **2033**

It was found that, during a severe spring-summer blowfly wave and a moderate autumn wave, the radical Mules operation gave an almost complete protection to newly-weaned ewe lambs. The sheep were crutched once during the summer (early February). The length of tail had no effect on the percentage of blowfly strikes.

The ordinary Mules operation on medium long-tailed sheep failed in the first season but was adequate during the mild autumn wave. Tail length influenced the efficacy of the operation, protection being better in medium long-tailed sheep than in the short-tailed sheep. —M. D. Murray.

Breev, K. A. & Savel'ev, D. V. (1954). [**Preventive measures against *Hypoderma* spp. in reindeer.**] — *Veterinariya, Moscow.* **31,** No. 7, pp. 35-37. [In Russian.] **2034**

A means of checking infestation of reindeer by ticks, mosquitoes, *Hypoderma* etc. was found by spraying herds with a 20% emulsion of D.D.T. and benzene hexachloride ("hexachlorane") diluted 3:1 with water. A hand pump was used, the fine nozzles being mounted

on high poles to the windward of a tightly bunched herd. The treatment, repeated 6–10 times during the insect flight period—July/September—proved highly effective in preventing infestation: 15 kg. of each substance was sufficient for one spraying of a thousand animals.—F. A. ABBEY.

BREEV, K. A. (1950/51). **[The behaviour of blood-sucking Diptera and bot-flies when attacking reindeer and the responsive reactions of the reindeer. I. The behaviour of blood-sucking Diptera and bot-flies when attacking reindeer. II. Herding together in reindeer as a factor in protection from the attacks of blood-suckers and bot-flies.** — *Mag. Parasit., Moscow.* **12,** 167-198 & **13,** 343-354. [In Russian. Abst. from abst. in *Rev. appl. Ent.* Ser. B. **42,** 67-68. (1954).] **2035**

B. noted the frequency with which bot flies and blood-sucking diptera settled on various parts of a tethered reindeer. The majority of simuliids, mosquitoes and tabanids settled on the belly and legs. Experiments with models showed that these insects had little appreciation of size or shape, and would settle on the shaded lower parts of any object which contrasted with its background. Bot flies were also as readily attracted to models as to living cattle.—A.S.

BOSHLAND, R. C. & HOPKINS, D. E. (1953). **Sterilization of screw-worm flies with X-rays and gamma-rays.** — *J. econ. Ent.* **46,** 648-656. **2036**

Cochliomyia hominivorax flies were made sexually sterile by irradiating 5-day pupae with 5,000 r X-rays or γ-rays. Irradiated males competed for mates about equally with normal males, but they did not live as long. Of the females irradiated on the 3rd day of the pupal stage few survived to lay eggs; only half the eggs laid were fertile. Those treated on the 4th and 5th days produced only a few scattered eggs.—BERYL A. KAY.

VAN DEN BERGHE, L. & LAMBRECHT, F. L. (1954). **Notes on the discovery and biology of *Glossina brevipalpis* Newst. in the Mosso Region (Urundi).**—*Bull. ent. Res.* **43,** 501-505. **2037**

This is the first record of *G. brevipalpis* in Ruanda-Urundi where it has been found in a dense riverine forest. It was a crepuscular species; the males were found on the paths in the forest and the females rested in trees 6–12 ft. from the ground. It was not discovered on what animal species the flies fed although mammalian blood was recovered from them. Unidentified trypanosomes were found in the proboscis or in the gut of the flies.

—JAS. G. O'SULLIVAN.

GLASGOW, J. P. (1954). ***Glossina palpalis fuscipes* Newst. in lake-side and in riverine forest.**—*Bull. ent. Res.* **45,** 563-574. **2038**

The populations of *G. palpalis* in a lake-shore forest were lowest where the forest was narrowest. Catches were more than ten times higher than those of *G. morsitans* or *G. swynnertoni*. The percentage catch of *G. palpalis* in the riverine habitat was higher than that taken at the lake-shore.—JAS. G. O'SULLIVAN.

JACKSON, C. H. N. (1954). **The hunger-cycles of *Glossina morsitans* Westwood and *G. swynnertoni* Austen.** — *J. Anim. Ecol.* **23,** 368-372. **2039**

By weighing, marking and recapturing tsetse flies in Tanganyika it was found that *G. morsitans* fed every 3 to 4 days and *G. swynnertoni* every 2½–3 days. J. suggested that this shorter hunger-cycle explains why *G. swynnertoni* is able to live in a more arid environment than *G. morsitans* in association with a generally higher density of host animal.

—JAS. G. O'SULLIVAN.

JOHNSON, G. G. & TAYLOR, L. R. (1955). **The development of large suction traps for airborne insects.** — *Ann. appl. Biol.* **43,** 51-62. **2040**

The authors described powerful mechanical suction traps for the estimation of the numbers of airborne insects, for use in exposed conditions where densities are very low or where winds are strong.—E.G.

WHITING, F., NELSON, W. A., SLEN, S. B. & BEZEAU, L. M. (1954). **The effects of the sheep ked (*Melophagus ovinus* L.) on feeder lambs.** — *Canad. J. Agric. Sci.* **34,** 70-75. **2041**

The ked populations increased more rapidly on poorly fed than on well fed lambs. In both instances the increase was more rapid during the first two or three months after infestation and then declined. The degree of infestation did not influence body-weight gains, wool production, suint or fat content of the fleece.

—THOMAS MOORE.

HOBART, J. & WHALLEY, P. E. S. (1954). **Occurrence of a species of *Ornithodoros* in Britain.** [Correspondence.]—*Nature, Lond.* **174,** 936. **2042**

O. talaje, considered to be a tropical or subtropical species, was recovered in large numbers from beneath stones on Puffin Island (North Wales). The nearest bird nests were 40–70 ft.

away but the ticks were found in nests of cormorant, shag, razor-bill and herring-gull. —JAS. G. O'SULLIVAN.

KALRA, S. L. & JACOB, V. P. (1951). **Effect of DDT and BHC on *Ornithodorus* Ticks. II.**—*Indian J. med. Res.* **39,** 311-317. **2043**

Benzene hexachloride ("gammexane $P_{\cdot 520}$"), sprayed or dusted weekly at 100 mg./sq. foot of wall, ceiling or floor area, gave better control of *O. tholozani* in mud-plastered buildings housing infested stock, and had a longer residual effect, than similarly applied D.D.T.—R. N. MOHAN.

VYAZKOVA, S. F. & BERNADSKAYA, Z. M. (1954). **["Khlorten"—a new parasiticide.]**—*Veterinariya, Moscow.* **31,** No. 6, pp. 54-57. [In Russian.] **2044**

"Khlorten" [composition not given] is an oily viscous dark liquid easily forming a white-coloured emulsion with water at any temperature. The authors tested it in various concentrations, comparing it with other insecticides, and found it 99·5% effective against species of *Hyalomma* and *Boophilus*.—F. A. ABBEY.

BASU, B. C., MENON, P. B. & SEN GUPTA, C. M. (1953). **Studies on the mange mites of livestock in India.**—*Indian J. vet. Sci.* **22,** 143-149. **2045**

A note on *Sarcoptes scabiei* mange in buffaloes and goats, and on *Demodex folliculorum* in dogs in India.—R. N. MOHAN.

See also absts. **1892** (control of plague vectors on squirrels); **1911** (ticks as brucella vectors); **1982, 1983** (arthropod-borne encephalitis); **1986** (role of mites in equine encephalitis); **2236** (book, parasitology).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

ONO, Y. & ISODA, M. (1952). **[Studies on fascioliasis. III. Artificial infestation of rabbits with metacercariae.]**—*Jap. J. vet. Sci.* **14,** 189-203. [In Japanese. English summary.] **2046**

From studies on 26 rabbits, given metacercariae of *Fasciola hepatica* by mouth, the authors concluded that the cercariae penetrate the wall of the intestine, enter the abdominal cavity, and pass directly to the liver. In rare cases they might enter the intestinal blood vessels, and reach the liver by way of the portal or hepatic veins.—KOGI SAITO.

YASUKAWA, M. (1952). **[Anthelmintics for *Fasciola hepatica*.]**—*J. Jap. vet. med. Ass.* **5,** 399-402. [In Japanese.] **2047**

Antimony compounds tested *in vitro* against *F. hepatica* first paralysed and later killed the flukes, especially in the presence of blood; but the discharge of ova was accelerated. Antimony was found in the digestive tract and in the testis of the fluke.—KOGI SAITO.

MOHR, W., FISCHER, I. & BORN, W. (1954). Umgebungsuntersuchungen bei *Fasciola hepatica*-Fällen in Norddeutschland (Grafschaft Hoya). **[Infestation of human beings with *F. hepatica* in a district of Northern Germany.]** — *Z. Tropenmed. u. Parasit.* **5,** 469-477. [English summary.] **2048**

Two cases of *F. hepatica* infestation had occurred in a village in Saxony. Examination of a random sample of 214 persons in the village, mainly children, revealed no further infestation.—F.E.W.

PULLIN, J. W. (1955). **Observations on liver lesions in lambs experimentally infected with the cysticercus of *Taenia hydatigena*.**—*Canad. J. comp. Med.* **19,** 17-25. **2049**

In lambs dosed with cysticerci of this species, early liver lesions were haemorrhagic tracts, burrows and puncture wounds. These gradually healed with the formation of fibrous nodules. Cysts were found mostly in the liver, omentum and peritoneal fluid. Many had degenerated. The reaction consisted of a cellular infiltration, mostly eosinophiles. The core became necrotic and healed by organization of the core.—R. GWATKIN.

RAO, M. V. K. (1953). **The economic importance of deworming sheep.**—*Indian vet. J.* **29,** 310-321. **2050**

Groups of sheep infested with strongyles and treated with 7–12 g. of phenothiazine at intervals of 6–8 weeks made better gains in weight than untreated groups.—R. N. MOHAN.

WHITLOCK, H. V. (1954). **Further observations on oesophageal tubes for drenching sheep.**—*Aust. vet. J.* **30,** 100-104. [Author's summary modified.] **2051**

The McMaster tube [*V.B.* **22,** 615] for drenching sheep with phenothiazine suspensions has been modified by the author and by three manufacturers of drenching appliances. W. described the apparatus and the method of oesophageal intubation with illustrations with reference to adaptation of the tube to automatic drenching guns.

The method has been successfully and safely applied under field conditions both by skilled and by unskilled operators,

W. commented on the administration of anthelmintics to sheep with special reference to the oesophageal-groove reflex, other types of apparatus for administration of drenches into the oesophagus, and the hazards (injury, choking, staining of the wool) associated with drenching.

ELSDON-DEW, R. (1954). **The sandworm.**—*S. Afr. J. Sci.* **51,** 77-79. **2052**

"Sandworm" or "creeping eruption", a skin disease occurring in human beings on the coast of Natal, was produced by placing larvae of *Ancylostoma caninum* and *A. braziliense* on the skin of human volunteers. The incidence of infestation of dogs with these helminths in Durban appeared to be high. The author concluded that human beings became infested with larvae from grassland bordering the beaches, contaminated with faeces from dogs harbouring the worms.—R.M.

HERLICH, H., DOUVRES, F. W. & STEWART, T. B. (1954). **Trials with phenothiazine variously administered to cattle.**—*Vet. Med.* **49,** 503-505. [Authors' summary modified.] **2053**

The efficacy of phenothiazine administered by means of capsule, bolus, and drench, with and without a wetting agent, was tested in 7 steers in poor condition as a result of helminth infestation. There was no significant difference in the efficacy of phenothiazine by the four methods of administration, but a drench of phenothiazine with a wetting agent appeared to be the most effective method against *Ostertagia ostertagi* and species of *Cooperia*. The authors discussed reasons for the occasional apparent failure of phenothiazine as an anthelmintic in ruminants.

TURNER, J. H. & COLGLAZIER, M. L. (1954). **Control of pasture-acquired infections of *Nematodirus spathiger* and *Haemonchus contortus* in lambs with phenothiazine-salt mixture.**—*Amer. J. vet. Res.* **15,** 564-573. [Authors' summary modified.] **2054**

Two similar trials were carried out during two successive grazing seasons to test the efficacy of a 1:9 phenothiazine-salt mixture against combined natural infestations of *N. spathiger* and *H. contortus*. In each trial 12 lambs grazed infested pastures; 6 had access to the phenothiazine-salt mixture, and the other 6 had access to salt only. A control group was also maintained on pastures relatively free from helminths.

Lambs receiving phenothiazine displayed lower degress of parasitism, better weight gains, and higher haematocrit levels than untreated lambs on infested pastures. The control lambs on comparatively helminth-free pastures made greater gains in weight than the treated lambs. Three of the untreated lambs died as a result of infestation.

Weekly faecal egg counts indicated that in some lambs the presence of *H. contortus* not only reversed the normal self-limiting course of *N. spathiger* infestation, but caused exacerbation and prolongation of the infestation. The authors concluded that the phenothiazine-salt mixture effectively controlled *N. spathiger,* and was of particular value when mixed infestations of the two helminths were present.

TSVETAEVA, N. P. (1954). **[Some problems in the pathology and diagnosis of *Dictyocaulus* invasion in sheep.]** — *Veterinariya, Moscow.* **31,** No. 10, pp. 39-44. [In Russian.] **2055**

T. studied the pathogenesis of *D. filaria* invasion in sheep by tracing the penetration of the larvae through the intestine into the mesenteric lymph nodes and thence *via* the bloodstream into the lungs. She described the development of lesions. Apart from anthelmintics, she recommended the administration of expectorants which dissolve mucus in the lungs and aid the mechanical discharge of dead larvae.—F. A. ABBEY.

BÜCK, G., QUESNEL, J.-J. & RAMBELOSON, L. (1954). Essais de traitement de la bronchite vermineuse porcine. **[Treatment of lungworm infestation in pigs.]**—*Rev. Elev.* **7,** 1-4. **2056**

Subcutaneous injections of 3% phenol soln. in water gave good results. "Didakol" [composition not given], suspended in oil and injected subcutaneously, was satisfactory in large pigs but was not tolerated by young weak subjects. Diethylcarbamazine acid citrate ("notézine"), given *per os,* was effective and tolerated by young weak subjects. Both drugs were found useful also in mixed strongyle-ascaris infestations.—T. E. GATT RUTTER.

SUDDUTH, W. H. (1955). **Lungworm infection in cats and its possible treatment.**—*J. Amer. vet. med. Ass.* **126,** 211-214. **2057**

A report on *Aelurostrongylus abstrusus* infestation of cats in Seattle, Washington. Treatment with diethylcarbamazine acid citrate was ineffective, but S. stated that three i/v injections, at 5-day intervals, of 2·5 ml. of a 20% sodium iodide solution were followed by dramatic improvement and apparent cure in

the 3 cases so treated. He suggested that tests of this type of treatment might be made with advantage.—F.E.W.

ABDULRACHMAN, S. & LIE KIAN JOE. (1954). **Morphological differences between ascaris from man and pigs.** — *Docum. Med. geogr. trop.* **6,** 342-344. [In English. Authors' discussion modified.] **2058**

The differences in form and size of the denticles in *Ascaris* from man and pigs are on the whole marked, but are not sharply defined. Out of 50 *Ascaris* worms from man one was found which was indistinguishable from those obtained from pigs and three were found in which the difference was ill-defined. Out of 43 *Ascaris* from pigs there was one worm in which the denticles were indistinguishable from those of the human *Ascaris*, while in seven other worms the differences were not marked. These findings support the opinion that *A. lumbricoides* is not identical with *A. suis*.

HANSEN, M. F., NORRIS, M. G. & ACKERT, J. E. (1953). **The influence of an all plant protein diet supplemented with aureomycin and vitamin B_{12} on the resistance of chicks to *Ascaridia galli* (Schrank).**—*Poult. Sci.* **32,** 612-617. **2059**

Chicks fed a plant protein diet plus supplements had, in contrast to those on a plant protein diet alone, less mortality and fewer individuals became infested. Supplements did not prevent the growth-retarding effect of infestation.—D. POYNTER.

FOLSE, D. S. & NEWBERNE, J. W. (1954). ***Spirocerca lupi* infection in dogs. A four-year survey.**—*N. Amer. Vet.* **35,** 519-522. **2060**

In a survey of *S. lupi* infestation of dogs in Alabama, U.S.A., over a period of 4 years, nodules containing the nematode were detected in the wall of the oesophagus of 43 out of 795 dogs examined P.M.—D. W. JOLLY.

MENON, M. N. (1953). **Trans-thoracic partial oesophagectomy for removal of *Spirocerca lupi* nests on the oesophageal wall in dogs.**—*Indian vet. J.* **29,** 377-380. **2061**

M. described the anaesthetic and surgical techniques he adopted for enucleating a spirocerca worm nodule.—R. N. MOHAN.

KLËSOV, M. D. (1950). **[Contribution to the question of the biology of two nematodes of the genus *Thelazia* Bosc, 1819, parasites of the eyes of cattle.**—*C. R. Acad. Sci. U.R.S.S.* **75,** 591-594. [In Russian.] [Abst from abst. in *Rev. appl. Ent.* Ser. B. **42,** 44-45. (1954).] **2062**

Musca larvipara is the more important of the two flies that have been shown to be intermediate hosts of *T. rhodesi* in the Ukraine. K. gave accounts of investigations in 1949 on its relation to this nematode and to *T. gulosa*, which also infests the eyes of cattle in the Ukraine but is much less common. Over 5,000 females of *M. larvipara* were caught between April and October in a pasture containing a small herd of cattle infested by *T. rhodesi* and dissected, and the nematode was found in 3·5% of them. The first-stage larvae of *T. rhodesi* enter the gut of the fly with the exudate from the eyes of the cattle, pass into the abdominal cavity a few hours later and then reach the egg follicles, in which they reach the infective stage. Total development in the fly lasts 15–30 days.

A healthy calf kept from 29th July to 1st Sept. in a fly-proof cage into which large numbers of *M. larvipara* caught on the infested cattle were introduced at intervals became infested on five occasions, 12 young nematodes being removed in all from the conjunctival cavities, whereas a control calf in a fly-proof cage remained free from infestation. When 89 larvae of *T. rhodesi* in the infective stage were removed from the proboscis of the fly and introduced into the conjunctival cavities of ten healthy calves kept isolated from flies, 67 sexually mature specimens of *T. rhodesi* (25 males and 42 females) were recovered 20–25 days later.

STUEBEN, E. B. (1954). **Larval development of *Dirofilaria immitis* (Leidy) in fleas.** — *J. Parasit.* **40,** 580-589. [Abst. from author's summary and conclusions.] **2063**

Of 1203 fleas, *Ctenocephalides felis*, collected from 71 dogs, 446 were found to be infested with larvae of *D. immitis* in advanced stages of development. When specimens of *Ct. felis* and *Ct. canis* were restricted to feeding on an infested dog, 98% of them became infested with *D. immitis*.

Microfilariae of *D. immitis* developed to the infective stage in both males and females of *Ct. felis, Ct. canis, Xenopsylla cheopis, Pulex irritans, Echidnophaga gallinacea* and *Orchopeas wickhami*. The prelarval forms of the worm penetrated the midgut wall of the flea and entered the abdominal haemocoele as early as one hour after ingestion with a blood meal. The first and second stages of development of the larvae took place in the haemocoele. The third stage larvae were found in the haemocoele of the abdomen and thorax. The majority of the infective stage larvae were found in the haemocoele of the head and thorax.

Dissections and serial sections of infested fleas showed that no major tissue damage or apparent injury of any organs could be attributed to the developing larvae.

Neither the fertility of the male fleas nor the egg production of the females was affected by the presence of the developing larvae.

There was no apparent increase in the mortality rate of infested fleas as compared to that of non-infested fleas.

The infective stage larvae were shown to be thermotropic, concentrating in the haemocoele of the head of the flea when warm saline was placed in its mouth-parts. The infective stage larvae are apparently incapable of moving out of an unfed flea. In 14 cases infective stage larvae escaped through the region of the mouth-parts of fed fleas when the intracoelomic pressure of the flea was increased. Infective stage larvae were observed leaving the body of fleas through injured areas of the exo-skeleton. Infective stage larvae were incapable of penetrating intact skin.

Of 47 infective stage larvae observed in 28 infested fleas before feeding, only 17 remained when the fleas were dissected after feeding. Examination of samples taken from the areas of skin bitten by the fleas revealed the presence of 3 of the larvae in the punctures they had made.

Because of the high percentage of infested fleas found under natural conditions, and because of the close association between dogs and fleas, these insects are probably the natural vectors of *D. immitis* infestation.

It is very apparent that filarial transmission is far less efficient than is the transmission of malaria where every bite results in a positive inoculation. Under these conditions the rate of infection of the intermediate host can be high and the rate in the definitive host low.

RAMANUJACHARI, G. & ALWAR, V. S. (1953). **Indian pig (*Sus scrofa domesticus*) as a host for *Onchocerca* sp. and *Enterobius vermicularis*.**—*Indian vet. J.* **29,** 329. **2064**

A note on the finding of a female specimen of *E. vermicularis* in one slaughter pig and of fragments of an unidentified species of *Onchocerca* in the aorta of two others.—R. N. MOHAN.

SHOHO, C. (1954). Epizootische cerebrospinale Nematodiasis (Setariasis) und ihre verzweigten Probleme. **[Lumbar paralysis in sheep and goats in Korea caused by *Setaria*, and related conditions.]**—*Dtsch. tierärztl. Wschr.* **61,** 25-32. **2065**

S. described the symptomatology of "lumbar paralysis" attributed to the effects of infestation with a *Setaria* worm in sheep [*V.B.* **22,** 2881] as seen in Korea and Japan. Species of *Setaria* have been found in the eyes of horses in Europe affected with equine periodic ophthalmia; he suggested that the worms may be responsible for periodic ophthalmia.

—W. G. SILLER.

KOTEL'NIKOV, G. A. (1954). **[*Filicollis anatis* in domestic ducks.]**—*Veterinariya, Moscow.* **31,** No. 6, pp. 30-32. [In Russian.] **2066**

K. described the life cycle of *F. anatis* in the duck.—F. A. ABBEY.

See also absts. **2221** (demonstration of helminth eggs in faeces); **2236** (book, parasitology).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

WINTZER, H.-J. (1955). Zum Geschwulstvorkommen beim Pferd. **[Incidence of tumours in horses.]**—*Mh. VetMed.* **10,** 49-50. **2067**

Of 2,100 horses seen in the surgical clinic at Leipzig, 44 had tumours. There were 14 fibromas (prepuce 5, skin and subcutis 9), 9 sarcomas (nasal cavities 3, lower jaw 1, eye 2, prepuce 3), and 21 carcinomas (nasal cavities 8, lower jaw 6, eye 4, prepuce 1, urinary bladder 2).—E. COTCHIN.

ERICHSEN, S. (1955). **A probable case of Hodgkin's disease in a dog.** — *Nord. VetMed.* **7,** 202-206. [In English. German and Norwegian summaries. Author's summary modified.] **2068**

Lesions presenting a histological picture conforming with that seen in Hodgkin's disease (malignant lymphogranulomatosis) in man were found in the subcutaneous tissue of the back, and in the superficial inguinal and pelvic lymph nodes of a bitch aged 8 years.

MOULTON, J. E. (1954). **Histological classification of canine mammary tumours: study of 107 cases.**—*Cornell Vet.* **44,** 168-180. **2069**

One hundred and seven surgical and autopsy specimens of mammary tumour from 97 bitches were classified histologically as mixed tumour (72), adenocarcinoma (27), fibrosarcoma (5), and osteochondrosarcoma (3). M. described briefly and illustrated the macroscopic and histological features of the various types. He stated that, in this series, myoepithelial proliferation could not be distinguished from

fibroblastic and pleomorphic epithelial cell proliferation.—E. COTCHIN.

STÜNZI, H. & TEUSCHER, E. (1953). Zur Histogenese der Herzbasisgeschwülste des Hundes. **[Histology of tumours of the base of the heart, in dogs.]**—*Zbl. VetMed.* **1,** 87-92. [English and French summaries.] **2070**

The authors described three tumours of the base of the heart in dogs. The first was a heart base tumour of chemoreceptor organ type, as described by Bloom [*V.B.* **14,** 614], the second was a carcinoma, with pulmonary metastases, possibly arising from ectopic parathyroid tissue, while the third was a intrapericardial tumour of ectopic thyroid tissue.—E. COTCHIN.

VIGUE, R. F. (1955). **Use of radon implants in the treatment of bovine ocular neoplasms.** —*J. Amer. vet. med. Ass.* **126,** 23-25. **2071**

Eight cases of epidermoid carcinoma of the eyelids of Hereford cattle were successfully treated by the use of radon implants. In the one illustrative case reported, seven 3-millicurie implants were inserted into a tumour (a second recurrence) of the lower left eyelid. A pronounced tissue reaction lasted a week: 2 months later the lesion had completely regressed.

—E. COTCHIN.

HOFFMANN, J. A. (1954). Hodenkrebs bei einem Kaninchen. **[Testicular carcinoma in a rabbit.]** — *Berl. Münch. tierärztl. Wschr.* **67,** 350-353. [English summary.] **2072**

An adenocarcinoma weighing **44** g. was found replacing the left testis of a 4-year-old male chinchilla rabbit.—E. COTCHIN.

GREENE, H. S. N. (1954). **Infectiousness of the virus in Shope papillomas induced or grown in the variant rabbit strain and in a resistant species.** — *Cancer Res.* **14,** 463-467. [Author's summary modified.] **2073**

Shope papillomas derived from the skin of cottontail and domestic rabbits but induced or grown in the variant strain (cottontail papilloma in domestic rabbits, domestic papilloma in cottontail rabbits) or in a resistant species (hamster) were tested for the presence of infective virus. It was found that papillomas induced in the intact animal or in isolated fragments of skin were unaltered in infectiveness following growth in the new environment. It was concluded that the body fluids of the domestic rabbit were not concerned in the masking process, whereby the pathogenicity of the Shope papilloma virus is lost after transfer from cottontail to domestic rabbits, and that alteration of the virus leading to loss of infectiveness was a function of factors resident in the epidermal cells of this strain.—E. COTCHIN.

NELSON, D., SZANTO, P. B., WILLHEIM, R. & IVY, A. C. (1954). **Hepatic tumors in rats following the prolonged ingestion of milk and egg yolk.** — *Cancer Res.* **14,** 441 - 444. [Authors' summary copied *verbatim.*] **2074**

Tumours of the liver which resemble hepatomas of the liver-cell type were observed in six of ten obese rats that had been maintained for over a year and a half on a diet solely of milk and egg yolk. In one case peritoneal implants were observed. No hepatic tumours occurred in a group of 25 animals of the same age receiving normal diets. The tumours developed in fatty but noncirrhotic livers. Bile duct proliferation was slight.

JOHNSON, R. M., ALBERT, S. & PINKUS, H. (1954). **Serum proteins in mice bearing induced and spontaneous mammary gland carcinomas.**—*Cancer Res.* **14,** 830-836. **2075**

Mice with spontaneous mammary carcinomas had serum gamma globulin levels lower than normal. In the high cancer strain, serum γ-globulin levels decreased as the animals approached the age at which mammary carcinomas began to develop, and there was also a decreasing ability to concentrate ^{32}P in the lymph nodes. Mice bearing transplanted mammary carcinomas had decreased serum γ-globulin levels. In normal mice, and those bearing small tumours, but not in mice bearing large spontaneous mammary carcinomas, administration of an antigen (horse serum) stimulated the uptake of ^{32}P in the lymph nodes, and increased serum γ-globulin levels.—E. COTCHIN.

SPREHN, C. & LÖLIGER, H.-C. (1954). Ein Fall von Ascites chylosus beim Nerz als Folge eines Chylangioma cavernosum cysticum. **[Chylous ascites in a mink as a result of cystic cavernous chylangioma.]** — *Dtsch. tierärztl. Wschr.* **61,** 321-324. **2076**

A $3\frac{1}{2}$-year-old female mink developed chylous ascites from rupture of a mesenteric cystic structure considered to be a neoplasm (chylangioma). The authors reported the chemical composition of the chylous fluid. A possible relation to previous injury existed.

—E. COTCHIN.

BREEDIS, C. & YOUNG, G. (1954). **The blood supply of neoplasms in the liver.**—*Amer. J. Path.* **30,** 969-985. **2077**

In animals bearing artificially-induced hepatic tumours, or tumours in the liver following injection of tumour suspensions, and in

human beings with metastatic neoplasms in the liver, it was found by injection techniques that malignant neoplasms growing in the liver tend to aquire an exclusively arterial blood supply, chiefly on account of progressive neoplastic invasion and occlusion of branches of the portal vein.—E. COTCHIN.

CADE, S. (1955). **Adrenalectomy for breast cancer.**—*Brit. med. J.* Jan. 1st, 1-4. **2078**

Bilateral adrenalectomy, along with bilateral oophorectomy, was performed on 56 women with disseminated breast cancer. Beneficial effects were obtained in more than half of the patients, being very good in 13 cases. Extended survival, up to 24 months, has been obtained on cortisone maintenance. "No other method of treatment has yet achieved control of disseminated, widespread, and often terminal stages of breast cancer comparable to that following bilateral adrenalectomy."

—E. COTCHIN.

I. BRYAN, W. R., MOLONEY, J. B. & CALNAN, D. (1954). **Stable standard preparations of the Rous sarcoma virus preserved by freezing and storage at low temperatures.**—*J. nat. Cancer Inst.* **15,** 315-329. **2079**

II. KAHLER, H., BRYAN, W. R., LLOYD, B. J., JR. & MOLONEY, J. B. (1954). **The density of the Rous sarcoma virus in sucrose solutions.** —*Ibid.* 331-336. **2080**

III. KAHLER, H., BRYAN, W. R., LLOYD, B. J., JR. & MOLONEY, J. B. (1954). **The sedimentation of the Rous sarcoma virus.**—*Ibid.* 337-339. **2081**

I. The authors stated that there was no appreciable loss in the virulence of partially purified Rous sarcoma virus suspensions in solutions of citrate salts after freezing and thawing. These suspensions remained stable during storage in a CO_2 refrigerator for periods ranging from 209-665 days. Variation among frozen virus samples of the same batch was negligible.

II. Density of Rous sarcoma virus in sucrose water was established by a centrifugation method.

III. The sedimentation constant of Rous sarcoma virus was established as 665 svedbergs, and the diameter of the virus as 89 ± 3 mμ.

—E.G.

GÖTZE, R., ROSENBERGER, G. & ZIEGENHAGEN, G. (1954). Die Leukose des Rindes. Ihre hämatologische und klinische Diagnose. **[Leucosis in cattle. Haematological and clinical diagnosis.]** — *Mh. VetMed.* **9,** 517-526. **2082**

The "leucosis key" [Leukoseschlüssel] involves the estimation of the total white cell count, and of the percentage of lymphocytes and lymphocyte-like cells, and seeing whether the figures fall in the "normal", "suspicious" or "leucotic" ranges. The authors gave examples of how the results of such estimations on a herd basis tallied with experience in herds in which many, few or no cases were observed, and how they might also be of value in individual animals. They considered that leucosis in cattle exists as a pre-tumorous form, recognizable by blood examination, before recognizable local tumours develop. Pictures were reproduced illustrating clinical symptoms arising from leucotic involvement of various organs.

—E. COTCHIN.

LODGE, K. V. & WOODCOCK, A. S. (1954). **Widespread acute necrosis of the liver following sulfonamide therapy in patients with leukemia.**—*Amer. J. Path.* **30,** 361-373. **2083**

An account of necrosis of the liver in three human patients with leucaemia, treated with repeated courses of sulphonamides, with the suggestion that the reaction may have been of an allergic nature.

GORDON, R. F. (1953). **The incidence of the avian leukosis complex in England and Wales.** —*Proc. XVth Int. vet. Cong. Stockholm.* 1953. Part I, Vol. 2. pp. 1054-1061. Part II. pp. 385-393. [In English. French and German summaries.] **2084**

G. quoted figures, obtained from the results of egg-laying trials, for the incidence of the avian leucosis complex in fowls in England and Wales during the period 1929-52. The disease accounted for 17 out of every 100 deaths in fowls in 1930, and 26 out of every 100 in 1952. He discussed transmission of the disease, the effect of the vitamin content of the diet on its incidence, and the breeding of resistant flocks, with reference to work performed at the Poultry Research Station of the Animal Health Trust.

—R.M.

ATANASIU & BASSET, J. (1953). Action des pressions élevées sur le virus de la leucose et les cellules érythroblastiques (embryon de poulet). Action des mêmes pressions sur les cellules de la leucose lymphoïde de la souris. **[Effect of high pressure on the virus of avian leucosis, and on mouse leucosis cells.]**—*Ann. Inst. Pasteur.* **85,** 500-503. **2085**

The causal agent of avian leucosis (Engelbreth-Holm strain S.K. adapted to chick embryo) resisted a higher pressure (2,000 kg./sq. cm.) in cellular sediment from bone

marrow and blood than in the supernatant fluid (negative at 1,500 kg./sq. cm.). The cells of lymphoid leucosis of mouse retained power of multiplication after 1,800 kg./sq. cm. Certain other mouse tumours were resistant only to 1,000 kg./sq. cm.—E. COTCHIN.

COTTRAL, G. E., BURMESTER, B. R. & WATERS, N. F. (1954). **Egg transmission of avian lymphomatosis.** — *Poult. Sci.* **33**, 1174-1184. [Authors' summary modified.] **2086**

An account of a series of eight experiments, involving 1413 chicks, to determine whether or not the causative agent of lymphomatosis was present in the tissue of embryos and chicks.

Neural and visceral lymphomatosis and osteopetrosis occurred in the inoculated chickens. The incidence of visceral lymphomatosis in the inoculated groups varied from 0·0 to 88·2%, with an overall average of 29·6%. The incidence of this form in the contact control groups varied from 0·0 to 22·2%, with an av. of 11·0%.

Most of the tests were made by the intraperitoneal inoculation of liver suspension, although other tests showed that the causative agent was filtrable and that it was present in other tissues and fluids of the chick and embryonated egg.

Twelve dams reared in an infected environment and 9 dams from isolated pens were individually tested by using a pool of 3–4 livers of embryonic offspring of each dam. The results show that at least 5 of the former and possibly 2 of the latter dams were carriers of the disease agent and were capable of infecting their offspring. All the dams were clinically normal at the time the test eggs were produced and only 4 of them developed lymphomatosis during a period of over 600 days. These findings were considered to provide direct evidence that the causative agent of visceral lymphomatosis can be transmitted from dam to progeny through the egg and that fowls that appear to be normal may be carriers of the agent.

Neural lymphomatosis, although present in the parent flock and in the experimental flock, was not transmitted by the inoculation of embryonic materials. Thus, no evidence for the egg transmission of neural lymphomatosis was obtained.

Osteopetrosis occurred in 7 of the inoculated birds, but was not found in the controls.

LOVE, R. & SHARPLESS, G. R. (1954). **Studies on a transplantable chicken tumor (RPL-12 lymphoma). III. Cytological changes during virus-induced oncolysis.** — *Cancer Res.* **14**, 758-767. **2087**

Superimposed infection of the host, inoculated with RPL-12 lymphoma, with the N.F.T. strain of St. Louis encephalitis virus, resulted in the development of large cytoplasmic "inclusions". The lipochondria increased in number and size, and the mitochondria of the tumour cells appeared to fuse with them in the process of paraffin embedding to contribute to the formation of the "inclusions". There was a partial arrest of mitosis in metaphase, and there were increased numbers of mitotic abnormalities and of binucleate cells. There was no evidence that the "inclusions" were Bollinger bodies of activated fowl pox.

—E. COTCHIN.

See also absts. **2225** (report, cancer research); **2235** (book, myxomatosis).

NUTRITIONAL AND METABOLIC DISORDERS

BARTLEY, E. E., ATKESON, F. W., FRYER, H. C. & FOUNTAINE, F. C. (1954). **Antibiotics in dairy cattle nutrition. III. Effects of different levels of aureomycin intake upon the growth and well-being of dairy calves, and the association of differences with changes in environment.** — *J. Dairy Sci.* **37**, 259-268. **2088**

In groups of calves reared from the age of 4 days in new calf pens in a barn where calves had not previously been housed, and fed a dietary supplement of aureomycin at levels of 15 mg. and 45 mg. daily per 100 lb. body wt., the incidence of infection was lower than in calves in a previous experiment [*V.B.* **23**, 2622] which had been housed in old quarters and fed a similar supplement. The growth rate of the supplemented calves was significantly better than that of controls which received no supplement, but the controls grew as rapidly as the calves in the previous experiment which received aureomycin at the 15-mg. level.

—P. H. HERBERT.

FERRANDO, R. & MABBOUX, H. (1954). Pénicilline dans le ration et bilan de l'azote chez le mouton. **[Effect of oral administration of penicillin on nitrogen balance in sheep.]** — *C. R. Acad. Agric. Fr.* **40**, 337-340. **2089**

The addition of penicillin to the ration of sheep appeared to have no effect on the digestibility of the nitrogenous constituents of the food or of cellulose.—R.M.

RONNING, M., RICHARDSON, C. W., BEROUSEK, E. R. & NORTON, C. L. (1954). **The effect of aureomycin upon the growth of dairy calves when administered orally, subcutaneously and intramuscularly.** — *Tech. Bull. Okla. agric. Exp. Sta.* No. T-52. pp. 11. [Authors' summary modified.] **2090**

An account of two experiments to determine the effects of different levels of crystalline aureomycin hydrochloride administered orally, subcutaneously and intramuscularly upon the growth rate, feed consumption and general health of dairy calves during the first four weeks of life.

When 70 mg. aureomycin was given orally by capsule the average body wt. gains at four weeks were 3·6 to 8·4 lb. greater per calf than controls in two experiments. In one experiment 250 mg. in a single weekly, oral dose was as effective in stimulating growth as 70 mg. administered daily. In the second experiment 125 mg. and 500 mg. in single weekly, oral doses resulted in 3·2 and 5·6 lb., respectively, more gain per calf than controls; but this response was considerably less than the 8·4 lb. weight advantage realized by the administration of 70 mg. daily in the same trial.

The intramuscular injection and subcutaneous implantation of 60 mg. aureomycin appeared to depress growth as compared to controls. When 250 mg. were injected intramuscularly, however, body wt. gains were increased by 4·4 lb. over controls as compared to an 8·4 lb. increase by the daily oral administration of 70 mg. in the same trial.

Scours was not a problem and though there was some indication that the oral administration of aureomycin had a controlling effect, it is doubtful that any relationship existed between the incidence or severity of scours and growth benefits in this study.

TRACE, J. C. & EDDS, G. T. (1954). **The influence of cobalt on the action of antibiotics.** —*Amer. J. vet. Res.* **15,** 639-642. [Authors' summary modified.] **2091**

Cobalt in the form of $CoCl_2$ or $CoSO_4$ enhanced the antibacterial action of penicillin, streptomycin and bacitracin against *Staph. aureus in vitro*. There was no such enhancement when cobalt was combined with oxytetracycline, chlortetracycline, chloramphenicol, or polymyxin. Cobalt reduced the inhibiting level of a combination of penicillin, streptomycin, sulphafurazole, and sulphathiazole from two to ten-fold against strains of the following organisms isolated from bovine mastitis:— *Staph. pyogenes, Bact. coli, Pseudomonas pyocyanea,* and *Bact. aerogenes.* [See also *V.B.* **19,** 785 & **20,** 1410.]

I. HIBBS, J. W., CONRAD, H. R. & POUNDEN, W. D. (1953). **A high roughage system for raising calves based on the early development of rumen function. II. Growth, feed consumption, and utilization by calves fed a 3 : 2 ratio of hay to grain with or without molasses or penicillin supplement.**—*J. Dairy Sci.* **36,** 1319-1325. **2092**

II. CONRAD, H. R. & HIBBS, J. W. (1953). **A high roughage system for raising dairy calves based on the early development of rumen function. III. Effect of rumen inoculations and the ratio of hay to grain on digestion and nitrogen retention.** — *Ibid.* 1326-1334. **2093**

I. The authors compared the feed-utilization of Jersey and Holstein calves, inoculated with ruminal microbial flora from adult cattle and given various high-roughage diets. No difference was apparent between the two breeds. Using Jersey calves, molasses and penicillin supplements were shown not to affect feed intake or utilization.

II. A report on the results of some biochemical balance studies. The effect of rumen inoculation is to increase apparent protein digestibility, possibly by inducing growth of more easily digested strains of bacteria. Increased nitrogen absorption did not cause increased retention.—P. H. HERBERT.

CHRISTIAN, K. R. & COUP, M. R. (1955). **Measurement of feed intake by grazing cattle and sheep. VI. The determination of chromic oxide in faeces.**—*N. Z. J. Sci. Tech.* Sect. A. **36,** 328-330. **2094**

An account of a method for the rapid determination of chromic oxide marker in faeces.

BLOSSER, T. H., ABBITT, W. H., SHAW, A. O., ASHWORTH, U. S. & SMITH, E. P. (1954). **The composition of foreign and domestic bone meals used in livestock feeding.**—*J. Anim. Sci.* **13,** 152-159. [Authors' summary modified.] **2095**

Twenty-two bone meal samples, 14 of which were of foreign origin, were analysed for their major and minor constituents. Four of the samples appeared to be contaminated and not to represent pure bone meal. When these were omitted, average levels of the major constituents determined were:—protein, 7·59%; ether extract, 0·93%; ash, 81·09%; calcium, 31·70%; phosphorus, 13·73%; magnesium, 0·64%; and sulphur, 0·22%. Average levels of

minerals determined spectrographically (omitting contaminated samples and expressed as p.p.m. of rehydrated ash) were: aluminium, 2344 p.p.m.; barium, 361 p.p.m.; copper, 16 p.p.m.; fluorine, 803 p.p.m.; iron, 964 p.p.m.; manganese, 49 p.p.m.; sodium, 5000 p.p.m.; strontium, 2433 p.p.m.; and zinc, 489 p.p.m. In addition, boron, chromium, molybdenum, silicon, silver, titanium, and vanadium were found in one or more of the samples.

Contents of copper and cobalt are too low for bone meal to be of much value as a suppl. for these two elements. It is a much better source of iron, manganese and zinc in addition to its established role as a calcium and phosphorus supplement.

De, N. K. (1953). **The alleged toxicity of Indian pulses.**—*Indian J. med. Res.* **41,** 359-365. [Author's summary slightly modified.] **2096**

The observations of Pal and Bose that diets based on cereals and containing large proportions of pulses caused severe damage of the liver and kidneys could not be confirmed.

Rats kept on a diet consisting of 33 parts pulse, 66 parts rice and one part common salt developed symptoms of paresis, *i.e.*, dragging of the hind legs, associated with loss in body weight and death. The younger animals were more susceptible than the older ones.

The deleterious effects of the high-pulse diets have been shown to be due to deficiency of calcium and phosphorus. Bengal gram and green gram, the two pulses tested, have been found to be devoid of any toxic effects on rats.

Care, A. D. (1955). **Goitrogenic activity in linseed.**—*N. Z. J. Sci. Tech.* Sect. A. **36,** 321-327. [Author's summary slightly modified.] **2097**

Congenital goitre was produced in lambs under controlled conditions with diets containing linseed meal. In both mice and sheep it was shown that linseed meal has a goitrogenic effect, which can be prevented by addition of iodide. The factor concerned is probably the cyanogenetic glucoside, linamarin.

Johns, A. T. (1954). **Bloat in cattle on red clover. I.**—*N. Z. J. Sci. Tech.* Sect. A. **36,** 289-320. [Author's summary modified.] **2098**

Bloat was studied in five dry cows (2 pairs of identical twins and a single cow) fed in stalls on cut red clover. Within wide limits the production of bloat was not conditioned by rate of intake or total intake of dry matter (D. M.). The tendency to bloat appears to be an inherited characteristic. There were similarities between twins and differences between pairs in bloating behaviour, reaction to different periods of starvation, and reaction to change in D. M. content of the clover.

Bloat was produced at all stages of wilting of clover up to hay of 72% D. M. content.

Neither rumen movement nor the eructation mechanism were inhibited during the onset of bloat.

The cause of the ailment appeared to be foaming of the rumen contents. The administration of anti-foaming agents was the only reliable preventive method of treatment for the condition. Treatment with adrenaline and with an antihistaminic greatly aggravated the condition. During the trial period 429 cases of bloat of varying grades of severity were produced.

Cunningham, I. J. & Hogan, K. G. (1954). **Oestrogens in New Zealand pasture plants.**—*N.Z. vet. J.* **2,** 128-134. [Authors' summary modified.] **2099**

A survey of subterranean and white clover samples from a number of districts revealed a high content of oestrogen in subterranean clover from all the districts and in all seasons. White clover had practically no oestrogen potency. Of a number of pure species of grasses and clovers examined, subterranean and red clovers were the only species which had an appreciable oestrogen content. Early spring growth of short-rotation (H.1.) ryegrass and perennial ryegrass had low but definite oestrogen contents, not present in later spring or autumn growth.

An occurrence of lactation in wethers was ascribed to oestrogen in the subterranean and red clovers in the pasture. No breeding problems in female sheep in New Zealand have yet been associated with oestrogens in their fooder.

I. Blaxter, K. L., Brown, F. & MacDonald, A. M. (1953). **The nutrition of the young Ayrshire calf. XIII. The toxicity of the unsaturated acids of cod-liver oil.** — *Brit. J. Nutr.* **7,** 287 - 298. [Authors' summary slightly modified.] **2100**

II. Blaxter, K. L., Brown, F., Wood, W. A. & MacDonald, A. M. (1953). **The nutrition of the young Ayrshire calf. XIV. Some effects of natural and synthetic anti-oxidants on the incidence of muscular dystrophy induced by cod-liver oil.**—*Ibid.* 337-349. **2101**

I. Calves were given a basal ration of dried skim-milk powder with small supplements of α-tocopherol acetate. Cod-liver oil or fractions of cod-liver oil were added to this diet. When vitamins A and D were not supplied by

cod-liver oil or its fractions, a concentrate containing them was given.

Severe muscular dystrophy developed in the calves given cod-liver oil or the total unsaturated acids of the oil. Slight dystrophy occurred in calves given the highly unsaturated acids of the oil. Calves receiving the non-saponifiable residue of the oil or the saturated fatty-acid fraction did not develop dystrophy. Those receiving the less unsaturated acids of the oil did not develop dystrophy, but their musculature was pale. Muscles of both dystrophic calves and normal calves contained approx. the same amount of total tocopherols. Dystrophic muscles contained the same amount as contiguous apparently normal muscles of the same animal, or even more. The authors concluded that the toxicity of cod-liver oil to calves was due to its content of polyunsaturated fatty acids, and not to any hypervitaminosis A or D, and they suggested that the toxicity may be a general effect of polyunsaturation rather than of a single polyethenoid acid.

II. The daily oral administration of 200 mg. α-tocopherol, or 1 g. methylene blue, prevented the development of muscular dystrophy in calves given cod-liver oil. Administration of the same dosage of α-tocopherol by i/m injection, or of biotin by i/m injection, did not protect the calves, neither did the oral administration of ethyl gallate or ascorbic acid.

—R.M.

Morton, R. K. (1954). **The lipoprotein particles in cow's milk.**—*Biochem. J.* **57,** 231-237. **2102**

M. described a method of separating the lipoprotein fraction ("milk microsomes") from the casein complex. Analysis revealed about 22% total lipoid (mostly phospholipoid), nucleic acid, haemochromogen (probably cytochrome C) and alkaline phosphatase, xanthine oxidase, diaphorase and diphosphopyridine nucleotide cytochrome - reductase activities. There was no detectable succinic dehydrogenase nor cytochrome oxidase activity.

—P. H. Herbert.

Goldfarb, A. R., Santamaria, L. & Foa, P. P. (1953). **Phosphorus metabolism in the dog kidney.** — *Proc. Soc. exp. Biol., N.Y.* **84,** 523-526. **2103**

Using a "single-pass" perfusion technique to represent physiological conditions, the authors reported rapid incorporation of ^{32}P into adenosine triphosphate, adenosine diphosphate and glucose-1-phosphate. Glucose-6-phosphate was apparently largely synthesized elsewhere than in the kidney.—P. H. Herbert.

Blaxter, K. L. & Sharman, G. A. M. (1955). **Hypomagnesaemic tetany in beef cattle.**—*Vet. Rec.* **67,** 108-115. [Authors' summary modified.] **2104**

Studies on 25 farms in Inverness and one in Caithness in 1953 and 1954 revealed that a slow fall in the concentration of magnesium in the blood serum of unweaned calves takes place during the first 3 months of life. Some farms are affected to a greater extent than others, and on a limited number, tetany and death occur. The clinical condition was shown to be quite distinct from enzootic muscular dystrophy which is also common in the area; it was estimated that the former condition affects about 5% of all the farms. The authors described the clinical signs, discussed briefly the P.M. appearance and emphasized the value of bone analysis in ascertaining the cause of sudden death. Two farms experiencing severe "outbreaks" were described in detail.

In experiments with 160 calves it was found that daily dosage with 500 mg. magnesium as the carbonate would prevent a very large part of the fall in the serum conc. of magnesium and abolish the incidence of tetany.

The disease did not appear to be associated with abnormalities of calcium metabolism, and the response to a single inj. of magnesium was not spectacular.

The authors found that the disease is due to a simple dietary deficiency engendered by very high rates of growth on whole milk which is not a sufficient source of magnesium. They made estimates of requirements to illustrate this point.

Small amounts of magnesium given by vein or mouth had only a temporary effect in abolishing tetany. The quantities given, while not small in terms of daily requirements, were small in terms of the overall body deficit of magnesium.

Allcroft, R. (1953). **The effect of oral supplements of magnesium oxide on hypomagnesaemia in cattle.**—*Proc. XVth Int. vet. Congr., Stockholm,* 1953. Part I. Vol. 1. pp. 573-578. Discussion: Part II. pp. 287-288. [In English. French and German summaries.] **2105**

The author described experiments in two herds of cattle, in which deaths from hypomagnesaemia had occurred, on the effect of the oral administration of magnesium oxide (in the form of calcined magnesite) on the Mg content of the blood. The administration of 2 oz. MgO resulted in a rapid rise in the Mg content of the

blood, and when daily administration was discontinued there was a rapid fall in the Mg content. When cows were turned out to graze on a cocksfoot and clover ley, the blood level of Mg in those treated with MgO remained constant, whereas that of untreated cows decreased. In discussion on the paper F. C. W. Ender mentioned the effect of undernutrition of cows and top-dressing of pastures with nitrogenous fertilizers on the incidence of the disease. J. B. White discussed dietary factors.—R.M.

Bernard, R. & Demers, J. M. (1952). Le manganèse dans la nutrition du caneton (Pékin blanc). **[Manganese in the nutrition of the duckling.]**—*Rev. canad. Biol.* **11,** 147-155. [English summary modified.] **2106**

When fed a diet deficient in manganese, ducklings exhibited the following symptoms: retardation in growth; decrease in the Mn content of the bones; lowered alkaline phosphatase activity of the blood serum; typical perosis, which appeared when birds were 10–15 days old.

A dietary content of 15 p.p.m. Mn was sufficient to prevent perosis, but about 60 p.p.m. was required to bring alkaline phosphatase activity of the serum to normal values. The addition of Ca and P in excess to a diet already deficient in Mn, aggravated the symptoms of perosis and further depressed growth.

Feaster, J. P., Hansard, S. L., McCall, J. T., Skipper, F. H. & Davis, G. K. (1954). **Absorption and tissue distribution of radiozinc in steers fed high-zinc rations.** — *J. Anim. Sci.* **13,** 781-788. [Authors' summary modified.] **2107**

The authors kept 2 yearling steers for more than a year on a ration containing a high level (100 p.p.m.) of zinc, and 2 control steers on a ration containing 20 p.p.m. zinc. They then administered radio-active zinc, either orally or intravenously, to all 4 animals, and studied its absorption and distribution in the tissues. Those steers dosed orally with ^{65}Zn excreted 72·2 and 65·8% in the faeces and 0·24 and 0·39% in the urine on the high-zinc and control rations, respectively. Following intravenous administration, 20·6 and 0·25% of the dose was excreted in the faeces and urine, respectively, with no differences attributed to dietary zinc level noted.

The rate of disappearance of ^{65}Zn from the blood following intravenous administration resulted in equilibrium between blood and the soft tissues in 10 hours. Activity in the plasma and r.b.c. was equal after about 6 hours, after which activity in the r.b.c. predominated. The accumulation of retained radio-active zinc was, in general, highest in the soft tissues, the pancreas, liver, pituitary, kidneys and adrenals having the highest concentration. The rate of turnover was highest for the liver and lowest for the incisor teeth. The accumulation and turnover of zinc in the various bones ran parallel with their metabolic activity.

Prodanov, P. (1952). **[Outbreak of osteomalacia in buffaloes in Bulgaria.]** — *Izv. Inst. eksp. vet. Med. Sofia,* **2,** pp. 173-184. [In Bulgarian. Russian summary.] **2108**

In the winter and spring of 1947-48, following a dry summer, osteomalacia was reported in 1,971 buffaloes over 4 years old. Fracture of the humerus, femur and ribs was common. The inorganic phosphorus level in the blood varied from 1·85–3·5 mg.%. The main constituents of the diet were maize stalks and millet stalks, which were found to have a Ca : P ratio of 13 : 1 and 7 : 1 respectively. During the winter buffaloes in the U.S.S.R. are often kept under cover in poorly lighted byres without exercise out of doors; this is a contributory cause of the condition.—F. A. Abbey.

Brüggemann, J., Bronsch, K. & Gall, C. (1953). Experimentelle Studie mit Radiophosphor an gesunden und rachitischen Ratten. **[Examination of healthy and rachitic rats with the aid of radio-active phosphorus.]** —*Zbl. VetMed.* **1,** 160-167. [English, French and Spanish summaries.] **2109**

The authors determined the phosphorus content of the liver, the musculature and the bones of 34 healthy and 43 rachitic rats by chemical methods. With this basic rate they compared the rate of new deposition of phosphorus in these tissues, 6 hours after oral dosage with ^{32}P. The quantity of phosphorus absorbed and the quantity eliminated did not differ in healthy and in rachitic rats. In healthy rats elimination was mainly through the kidneys, in rachitic ones through the intestine. The amount of protein phosphorus was the same in both groups, but the remaining phosphorus (mainly inorganic) was distinctly less in the rachitic group. The interchange of phosphorus between liver, muscles and bones is to be attributed less to the effect of vitamin D than to the affinity of the tissues for this mineral.—H. Behrens.

Bonadonna, T. & Kaan, I. (1954). Primi risultati della somministrazione di vit. A e di olio di germi di grano ai tori. **[Effects of vitamin A and vitamin E on stud bulls.]**—*Zootec. e Vet.* **9,** 148-158. **2110**

The authors studied the effects of vitamin A and wheat-germ oil on stud bulls with special

reference to the number of ejaculations and the quantity and quality of ejaculates. Results were considered encouraging.

—T. E. Gatt Rutter.

Savchik, A. P. (1954). **[Specific hypovitaminosis and the protective qualities of unpigmented skin of farm animals in the Arctic Circle.]** — *Veterinariya, Moscow.* **31,** No. 2, pp. 53-55. [In Russian.] **2111**

In the region of the Arctic Circle farm animals have to be confined indoors for 9–10 months of the year and are fed largely on hay of poor quality, the herbage there having little nutritive value. Grey horses and those of the lighter colours remain fairly healthy, but those with darker coats develop eczema, dermatitis, purulent skin lesions etc.

That skin pigmentation is deleterious under these conditions was confirmed by examination of 24,000 reindeer in which similar findings were recorded. White reindeer also have a thicker coat, are bigger and healthier and either have smaller horns or are hornless; the latter factor appears to reduce their susceptibility to a so-called "head disease".

The majority of black piglets die in these regions. Cattle appear to avoid acute vitamin deficiencies because they are fed silage made from fresh grass, but any dark patches on the skin are liable to ringworm attack.

S. concluded that albinism in arctic regions acts as a protective factor.—F. A. Abbey.

Bergel, F. (1954). **Some chemical aspects of abnormal growth.**—*Nature, Lond.* **174,** 156-159. **2112**

This is a very condensed synopsis of two lectures given in London in extension of an earlier series [*V.B.* **23,** 2919] on chemical aspects of normal growth. Abnormal growth—excessive, diminished or distorted—ensues when the balance between inhibitory and stimulative factors affecting the cells is disturbed. B. discussed critically biochemical work in a wide field, ranging from plant galls to mammalian neoplasms and embryos. He suggested tentatively that the ultimate mechanism may reside in a failure of protein or nucleic acid synthesis, leading to enzyme or hormonal imbalance.

—P. H. Herbert.

Jovanović, M., Pantić, V. & Marković, B. (1953). **[Goitre in domestic animals in Serbia.]**—*Acta vet., Belgrade.* **3,** 31-51. [In Serbian. English summary.] **2113**

The authors investigated goitre in goats, sheep, cattle, pigs and horses in districts where a large percentage of the inhabitants suffer from the disease.

The incidence of the disease in the animals ran parallel with that in the human population.

—A.S.

Searle, G. L., Strisower, E. H. & Chaikoff, I. L. (1954). **Glucose pool and glucose space in the normal and diabetic dog.** — *Amer. J. Physiol.* **176,** 190-194. **2114**

By using a priming dose followed by continuous infusion of glucose, values for glucose pool and volume can be obtained, despite the rapidity with which glucose is oxidized. The normal pool figure (2–3 g.) is increased about 3 times in diabetics. The space occupied by diffusible glucose is unaltered by diabetes or insulin.—P. H. Herbert.

Ward, G. M., Blosser, T. H. & Adams, M. F. (1953). **Mineral balances at parturition as related to the occurrence of parturient paresis in dairy cows.** — *Tech. Bull. Wash. agric. Exp. Sta.* No. 5, pp. 24. **2115**

Data for the Washington College herd showed a slight trend, intensified in milk fever cases, toward lower sodium and higher potassium and chloride blood levels on either the day of or after calving. Conversely, urinary excretion of Na increased and K and Cl decreased.

Cows which ultimately developed milk fever had the most severe negative calcium balance prior to calving.—W. H. Parr.

See also abstr. **2059** (influence of diet on *Ascaridia galli* infestation); **2074** (tumours following diet of milk and egg yolk); **2119** (wasting disease of cattle in Brazil); **2120** (rumenitis–liver abscess complex); **2224** (report, dairy research); **2243** (book, vegetation).

DISEASES, GENERAL

Veenendaal, H. (1955). Mededelingen uit de Veterinaire Oogheelkundige Afdeling. Samenvatting van de in de laatste jaren verschenen mededelingen en verrichte onderzoekingen omtrent de iridocyclochorioiditis recidiva equi en de keratoconjunctivitis bovis. **[Work of the Department of Veterinary Ophthalmology, Utrecht: equine periodic ophthalmia and bovine infectious keratoconjunctivitis.]**—*Tijdschr. Diergeneesk.* **80,** 161-171. [English, French and German summaries.] **2116**

A general discussion on the subjects.

—C. A. van Dorssen.

Willems, R. (1954). De infectie-ziekten bij het kalf. **[Infectious diseases of calves.]**—*Vlaam. diergeneesk. Tijdschr.* **23,** 193-206. **2117**

W. gave the results of P.M. examinations of 799 new-born calves which had died from various causes. Infection with *Bact. coli*, streptococci, *Past. septica* or *Past. haemolytica* was the most common cause of death. Myocarditis due to F. & M. disease was seen in the course of outbreaks of that disease. W. discussed the influence of brucellosis and nutritional deficiencies on the development of *Bact. coli* infection in calves.—C. A. VAN DORSSEN.

UGORSKI, L. (1953). Rzadkie schorzenia zakaźne ptactwa domowego. [**Some rare infectious diseases in domestic poultry.**]—*Méd. vét., Varsovie.* **9,** 451-453. [In Polish.] **2118**

The author stated that the following infections, though rare, have occurred in poultry and cage birds in Poland:—*Streptococcus gallinarum* in fowls and in budgerigars; *Staphylococcus aureus* in geese, fowls and turkeys; *Erysipelothrix rhusiopathiae* in all species of poultry; *Pasteurella pseudotuberculosis* in turkey poults. *Bacillus anthracis* infection has occurred in poultry fed meat from infected carcasses. *Bact. coli*, causes infection in certain circumstances. F. & M. disease has been noted particularly in water birds.—J. R. MITCHELL.

LACAZ, J. S. (1954). Mal de colete. Causas conhecidos e prováveis. Estudio clínico. Tratamento. [**Wasting disease of cattle in the Paraíba Valley, Brazil. Aetiology, symptoms and treatment.**]—*Biológico.* **20,** 78-84 & 99-106. [English summary.] **2119**

A clinical account of chronic cachexia in cattle in the Paraíba Valley, Brazil. The cause was not determined, but L. suggested mineral deficiency or selenium or plant poisoning. Pasture rotation was followed by an improvement of the cattle.—R.M.

JENSEN, R., DEANE, H. M., COOPER, L. J., MILLER, V. A. & GRAHAM, W. R. (1954). **The rumenitis-liver abscess complex in beef cattle.**—*Amer. J. vet. Res.* **15,** 202-216. [Authors' summary modified.] **2120**

The authors examined the stomach and liver of 1,535 apparently heathy fattened cattle. In 577 there was non-traumatic inflammation of the rumen, and in 85 there was traumatic reticulitis. They described the pathology and histology of acute and chronic inflammation of the rumen. Colonies of *Fusiformis necrophorus* were often observed in inflamed tissue. Most of the lesions were in the anterior ventral sac of the rumen. Abscess formation in the liver was more common in cattle with lesions of the rumen than in normal cattle. The incidence of liver abscesses and lesions of the rumen in 630 calves was low.

They found that the feeding of large amounts of barley to cattle which were not accustomed to grain as part of their ration, was associated with a high conc. of acid within the rumen, and at P.M. examination acute inflammation of the rumen, identical with that previously observed, was present. The feeding of acetic acid or sodium acetate did not produce the condition.

DRIEUX, H. & GUILHON, J. (1953). Histologie des lésions pulmonaires d'une affection simulant la "Bouhite" des moutons landais. [**Histology of the pulmonary lesions in a disease of sheep resembling "bouhite".**]—*Bull. Acad. vét. Fr.* **26,** 259-263. **2121**

Microscopic histology of pulmonary lesions occurring in sheep in the Paris neighbourhood enabled differentiation of a condition simulating "bouhite" [*V.B.* **17,** 580, 1004, 2035, 2036 & 2037] from the true "bouhite", considered probably to be a severe intoxication of vegetable origin.—J.D.

GWATKIN, R., DZENIS, L., GREIG, A. S. & GRINEWITSCH, C. (1954). **Rhinitis of swine. IX. Further studies on aetiological agents.**—*Canad. J. comp. Med.* **18,** 341-346. **2122**

A bacteria-free filtrate of infective nasal material from pigs with atrophic rhinitis failed to produce the disease in piglets. Pigs in contact with litter-mates that had been infected with pure culture of *Pasteurella septica* developed rhinitis. Three of 14 pigs infected with pleuropneumonia-like organisms developed pus in their nares but no atrophy. Subcutaneous injection and intranasal instillation of chemically-killed *Past. septica* failed to protect against subsequent infection.—P. J. G. PLUMMER.

MATTHIAS, D. (1953). Über die Bedeutung des Kaliums für die Ätiologie des sogenannten plötzlichen Herztodes der Schweine. [**The role of potassium in the aetiology of fatal syncope in pigs.**]—*Arch. exp. VetMed.* **7,** 399-405. **2123**

Fatal syncope in pigs is associated with the feeding of large amounts of potatoes. M. was unable to reproduce fatal syncope by the oral or parenteral administration of potassium salts, and concluded that the high potassium content of potatoes was not responsible for the condition. He also demonstrated that adrenal insufficiency was not responsible for the high potassium content of the serum of affected pigs. —H. BEHRENS.

BASSETT, C. S. (1954). **Myositis eosinophilia. Clinical notes on the condition in army dogs.**—*J. R. Army vet. Cps.* **25,** 3-5. **2124**

A clinical account of facial eosinophilic myositis in 9 Alsatian dogs [see also *V.B.* **22,** 3494].—R.M.

POURSINES, Y. & TAMALET, J. (1954). Résultats neurologiques chez le chien de l'administration prolongée d'antigène et d'adjuvants suivant la technique de Kabat-Morgan. Lésions diffuses réactionnelles gliales et dégénératives neuronales. **[Lesions of allergic encephalomyelitis in the dog.]**—*C. R. Soc. Biol., Paris.* **148,** 125-127. **2125**

The authors reported nervous symptoms, including ataxia and coma, in 3 dogs given weekly injections of killed tubercle bacilli (25 mg.) in liquid paraffin (10 ml.), and a ground preparation of g. pig brain in phenolized physiological saline soln. together with 10 ml. of an adjuvant composed of beeswax, lanolin and cholesterol. The dogs died after approx. 15 injections. At P.M. examination the white matter was found to be invaded by proliferating neuroglial cells.—A.S.

SPÄTH, H. (1954). Die Zellulartherapie nach Dr. P. Niehans in der Behandlung ekzematöser Erkrankungen des Hundes. **[Treatment of eczema in dogs by implantation of healthy juvenile or foetal cell tissue.]** — *Tierärztl. Umsch.* **9,** 203-204. **2126**

S. described the preparation of an extract of bovine placental tissue. He claimed that this extract, given i/m to dogs with chronic eczema, effected cure in 4–6 weeks.—A.S.

OTTEN, E. & HENZE, S. (1954). Beitrag zum ulzerierenden Lippengranulom der Katze. **[Ulcerating granuloma of the lip in the cat.]** —*Dtsch. tierärztl. Wschr.* **61,** 448. **2127**

A note describing the presence of *Staphylococcus pyogenes* and *Clostridium welchii* in a granulating ulcer on the lip of a cat.

TOMLINSON, A. R. & GOODING, C. G. (1954). **A kangaroo disease. Investigations into "lumpy jaw" on the Murchison, 1954.**—*J. Dep. Agric. W. Aust.* **3,** 715-718. **2128**

A note on "lumpy jaw", a disease of kangaroos in the Murchison area of Western Australia which appears to be a soil-borne infection, possibly caused by *Fusiformis necrophorus.* It is considered improbable that the artificial spreading of the disease by man would prove of assistance in controlling the kangaroo population which is a menace to agriculture. The authors gave details of the poisoning of water supplies for these animals which has so far proved the most effective method of reducing their numbers.—R. I. SOMMERVILLE.

CHERRY, C. P., BLAND, M. N., CONSTABLE, B. J., HUGHES, R. E. & HARRIS, L. J. (1954). **Morphology of the enlarged liver in guinea-pigs treated with ACTH or cortisone.**—*Brit. J. exp. Path.* **35,** 551-555. [Authors' summary modified.] **2129**

The authors studied the morphological changes in the liver in g. pigs after continued administration of A.C.T.H. or cortisone. The large increase in liver weight after such treatment was shown to be due to an increase in the volume of existing liver cells, attributable to enlargement of the cytoplasm, and not to a new growth of liver tissue. After treatment with A.C.T.H. the percentage increase in relative liver wt. was 37 and in cell volume was 36; in cortisone-treated g. pigs the figures were 57 and 66 respectively.

ALTSCHUL, R. & SPENCER, E. Y. (1952). **Biological effect of 7-ketocholesterol.** — *Rev. canad. Biol.* **11,** 258. [In English. French summary. Authors' summary modified.] **2130**

Rabbits, mice, rats, hamsters and g. pigs, treated by various routes with oxidized cholesterol, frequently showed pathological changes, which consisted mainly of a thinning of the cell-strands in the liver and adrenal cortex; cyst formation in the ovaries and (more rarely) in other tissues; cystic enlargement of the renal collecting tubules; infarction or cirrhosis of the liver.

POISONS AND POISONING

DALE, G. D. & CRAMPTON, E. W. (1955). **Observations on chronic fluorosis in dairy cattle.** —*Canad. J. comp. Med.* **19,** 6-16. **2131**

The authors reported chronic fluorine poisoning in three herds of cattle. The source of fluorine appeared to be in the mineral supplements that had been fed. They drew attention to the known danger of using raw rock phosphate as a source of Ca and P. Legislation to control this is at present pending.

—R. GWATKIN.

HARVEY, J. M. (1953). **Further studies of fluorosis in Merino sheep.**—*Qd J. agric. Sci.* **10,** 109-124. **2132**

Six sheep were continuously exposed to fluorided water from 3 months to 27 months of age, then protected from further exposure for 30 months. X-ray and chemical analyses indicated that effects of fluorosis on incisor teeth are permanent. Bone defects (rarification, and shortening of the horizontal ramus of the mandible) are not permanent.—THOMAS MOORE.

Fontanelli, E. (1954). L'avvelenamento cronico da solfato di rame nelle pecore. **[Chronic copper sulphate poisoning in sheep.]**—*Zooprofilassi.* **9,** 383-384. **2133**

A general discussion. No new work.

—G. P. Marshall.

Bohosiewicz, M. (1953). Doświadczalne zatrucia świń solą kuchenną **[Experimental sodium chloride poisoning in pigs.]** — *Méd. vét., Varsovie.* **9,** 498-501. [In Polish.] **2134**

An account of tests with 7 pigs, fed potatoes, bran mash, and sodium chloride in various concentrations. Five of the pigs died: these included 3 which were given NaCl at the rate of 3 g./kg. body wt., two of them 3 times and the other once daily, and 2 given 4 g./kg. once daily. The other two which were given NaCl at lower levels (2 g. and 1 g./kg.) were slaughtered. There were individual differences in response, but nervous symptoms were general. Some pigs refuse salty food.

—J. R. Mitchell.

Rowe, V. K. & Hymas, T. A. (1954). **Summary of toxicological information on 2,4-D and 2,4,5-T type herbicides and an evaluation of the hazards to livestock associated with their use.**—*Amer. J. vet. Res.* **15,** 622-629. [Authors' conclusions and summary modified.] **2135**

The LD_{50} of the weed-killers "2,4-D" [2,4-dichlorophenoxyacetic acid], "2,4,5-T" [2,4,5-trichlorophenoxyacetic acid] and their derivatives commonly employed as weed-killers ranged from 0·3 to 1·0 g./kg. when administered by mouth to rats, mice, g. pigs and rabbits. Generally, dogs were more susceptible, and chicks were more tolerant, to these substances than laboratory animals; toxicity for cattle appeared to be similar to that for the lab. animals.

"MCP" [2-methyl-4-chlorophenoxyacetic acid] and "silvex" [2-(2,4,5-trichlorophenoxy) propionic acid], and their derivatives appeared to be slightly less toxic than the substances mentioned above.

The authors concluded that the hazard to domestic and wild animals associated with the use of this type of weed-killer was negligible. They emphasized that poisoning would result if animals had access to spray tanks or other containers of these substances.

McGirr, J. L. & Papworth, D. S. (1955). **The toxicity of rodenticides. I. Sodium fluoroacetate, ANTU and warfarin.**—*Vet. Rec.* **67,** 125-129. [Authors' summary modified.] **2136**

Fitzpatrick, R. J., McGirr, J. L. & Papworth, D. S. (1955). **The toxicity of rodenticides. II. Red squill and zinc phosphide.** —*Ibid.* 142-144. [Authors' summary copied *verbatim.*] **2137**

I. The authors discussed the toxicity and physiological action of fluoroacetate.

The acute toxicity of ANTU (α-naphthylthiourea) for dogs was investigated and values agreed with LD_{50} levels previously reported. Experiments on the acute and chronic toxicity of ANTU for pigs in conjunction with a chemical examination of tissues and fluids for the presence of poison showed:—(a) that doses of 40 mg. per kg. body wt. or more might be fatal; (b) that the chemical test is not reliable unless a large amount of ANTU is present and death occurs within 24 hours of dosage and (c) that repeated consumption of sub-toxic doses up to 28 mg. per kg. body wt. does not produce symptoms or lesions.

Studies of the acute and chronic toxicity of "warfarin" (3-α-acetonylbenzyl-4 hydroxycoumarin) revealed that poultry and calves were very resistant to the quantities they are ever likely to be able to consume accidentally. Toxicity levels for dogs were variable, but it appeared that upwards of 4 mg. per kg. body wt. per day for four days might be fatal. One or two dogs survived 25 mg. per kg. body wt. for four days.

Toxicity tests of warfarin for pigs showed: (a) that they are susceptible to poisoning if dosage is sufficiently high, or often repeated; (b) that no symptoms or findings were produced by a single dose of 3·3 mg. per kg. body wt.; (c) that symptoms and death can be produced by repeated small doses of the poison; (d) that symptoms and lesions are variable.

II. Toxicity trials of red squill for cattle, sheep, pigs, goats, dogs and cats showed that goats were relatively the most resistant animals, but that, except for very young animals, it was unlikely that a toxic dose for normal livestock would be available after baits had been laid on a farm. Emesis can occur in some species, *e.g.*, pigs, dogs and cats, after eating the poison, but may not always save the animal.

The symptoms of zinc phosphide poisoning were not specific, the general reactions being those of a toxaemia. The evidence clearly showed that a diagnosis of zinc phosphide poisoning without collateral chemical evidence is not advisable.

DeLong, D. M. & Ludwig, P. (1954). **Hazards involved when animals are exposed to organic**

insecticidal residues.—*J. econ. Ent.* **57,** 1056-1057. **2138**

The authors carried out experiments with insecticides as sprays or "fogs" to ascertain their toxicity for vertebrates by contamination of food with residual deposits and by direct action. Results were negative.

—T. E. Gatt Rutter.

I. Wagener, K. & Krüger, A. (1953). Experimentelle Hyperkeratose ("X-Disease") bei Katzen und Hunden. [**Experimental hyperkeratosis in dogs and cats.**] — *Dtsch. tierärztl. Wschr.* **60,** 312-315. **2139**

II. Köhler, H. (1953). Pathologisch-anatomische Befunde bei der experimentellen Hyperkeratose der Haustiere. [**Pathology of experimental hyperkeratosis in domestic animals.**]—*Ibid.* 316-320. **2140**

I. Cats and dogs were placed in kennels treated with an unnamed wood preservative which had been responsible for outbreaks of hyperkeratosis in cattle; dogs were also given oral doses. Pathogenic effects were influenced by age, younger animals succumbing more quickly than older. A kerato-conjunctivitis was observed within the first 2–3 weeks after exposure, being followed by loss of hair, emaciation, stunted growth and hyperkeratosis of the lips, eyelids and ears. Death was common in young animals.

II. Substances producing hyperkeratosis are active *per os,* by skin absorption and possibly by inhalation. The effect may be purely toxic, producing degeneration in the liver, or one of stimulating excessive proliferation of epithelium as instanced in the duodenum, bile ducts and renal epithelium. Basically the substances have an effect of depressing the threshold of vitamin A.—E. J. L. Soulsby.

Ratera, E. L. (1952). Plantas tóxicas para el ganado en la República Argentina. I. *Nierembergia hippomanica* Miers (N.V.: Chuscho, chucho, etc.). [*Nierembergia hippomanica,* **a plant poisonous for livestock in Argentina.**] — *Rev. Med. vet., B. Aires.* **34,** 237-239. **2141**

N. hippomanica, a member of the family Solanaceae, is toxic, especially for horses and mules, but also for other domestic animals. Ingestion of the young flowering plant causes colic, convulsions and paralysis. Ingestion of the dried plant causes gastro-enteritis, not usually fatal. Immediate treatment is the administration of demulcent liquids, such as milk, and white of egg in water; further treatment is symptomatic.—I. W. Jennings.

Evans, W. C., Evans, E. T. R. & Hughes, L. E. (1954). **Studies on bracken poisoning in cattle—Part I.** — *Brit. vet. J.* **110,** 295-306. **2142**

Evans, W. C., Evans, E. T. R. & Hughes, L. E. (1954). **Studies on bracken poisoning in cattle—Part II. 1950 bracken poisoning experiments (Lluest farm).** — *Ibid.* 365-380. **2143**

I. Both clinical types (haemorrhagic and oedematous) of bracken poisoning were produced in calves and older cattle by feeding green bracken. Vitamins of the B complex were valueless therapeutically. In preliminary experiments calves receiving a bracken/molasses mixture survived; the authors discussed this observation briefly.

II. In further experiments 5 animals receiving active bracken died whether or not molasses formed part of the diet, whereas 3 yearlings receiving steamed bracken survived. The authors discussed this observation and gave details of haematological findings, including the results of examining material from sternal bone-marrow biopsies; the blood changes were preceded by lesions in the bone-marrow which became aplastic in regard to the granulocytic and thrombocytic series. A range of therapeutic agents was tested and found to be valueless after the onset of symptoms.

—C. A. E. Briggs.

Evans, W. C. Evans, E. T. R. & Hughes, L. E. (1954). **Studies on bracken poisoning in cattle—Part III. Field outbreaks of bovine bracken poisoning.** — *Brit. vet. J.* **110,** 426-436. Appendix pp. 437-442. [Authors' summary modified.] **2144**

An account of two field outbreaks of bracken poisoning in cattle. Leucopenia and thrombocytopenia were constant features of the condition, also increased capillary fragility, prolonged bleeding time, and defective clot-retraction. The clotting and prothrombin times were not grossly affected. Biopsy of the sternal bone marrow revealed aplasia of granulocytic and thrombocytic cells, sometimes with hypoplasia of erythrocytic cells. The thiamine content of the tissues of affected cattle was not abnormally low. The pyruvic acid content of the blood remained normal until the day before death, when there was a sharp rise, which might have been due to starvation ketosis.

Treatment with vitamins, antibiotics, sul-

phonamides and blood transfusion was unsuccessful. Bracken which had been steamed for an hour did not produce the disease when fed to cattle. The authors suggested that bracken may contain a hitherto unidentified heat-labile or volatile substance which has a direct toxic action on bone-marrow. Thiaminase did not appear to play a role in bracken poisoning.

See also absts. **2096** (toxicity of Indian pulses); **2097** (goitrogenic activity in linseed); **2100, 2101** (toxicity of cod-liver oil).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

QUASTEL, J. H. (1953). **Action of drugs on enzyme systems.** — *Brit. med. Bull.* **9,** 142-145. [77 refs.] **2145**

P. discussed the principle of competitive inhibition by structural analogues and gave examples. Arsenicals act by non-competitive combination with a specific group of the active centre of an enzyme. The inhibitory effects of various narcotics on the oxygen consumption of minced g. pig brain are related to their hypnotic powers.—W. R. BETT.

REBER, E. F. & WILLIGAN, D. A. (1954). **The effects of a chlorophyll derivative when included in a ration fed rats. II. Reproduction, blood, and tissue studies.** — *Amer. J. vet. Res.* **15,** 643-646. [Authors' summary modified.] **2146**

The authors studied the effect of a ration containing 1% of the potassium disodium copper salt of chlorophyll on rats. It did not affect growth, conception rate, or number of young born, but decreased the survival rate of rats during the first 5 days of life, and lactation as measured by the weight of the offspring at weaning time. The drug caused a significant increase in neutrophiles. Haemoglobin values were 14 g./100 ml. blood, and the incidence of polychromasia and normoblasts was reduced. Freshly weaned rats continued on a ration containing the drug showed some difficulties in locomotion, although their growth rate appeared to be satisfactory. P.M. examination of these rats revealed degeneration and phagocytosis of affected muscle fibres.

I. CONOVER, L. H., MORELAND, W. T., ENGLISH, A. R., STEPHENS, C. R. & PILGRIM, F. J. (1953). **Terramycin. XI. Tetracycline.** [Correspondence.]—*Amer. J. chem. Soc.* **75,** 4622-4623. **2147**

II. BOOTHE, J. H., MORTON, J., PETISI, J. P., WILKINSON, R. G. & WILLIAMS, J. H. (1953). **Tetracycline.** [Correspondence.]—*Ibid.* 4621. **2148**

I. The authors reported the preparation of tetracycline hydrochloride (4-dimethyl-amino-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide) from chlortetracycline (aureomycin hydrochloride). In contrast to chlortetracycline, tetracycline was found to be stable in alkaline soln. Its activity *in vitro* against various micro-organisms paralleled that of oxytetracycline (terramycin) and chlortetracycline.

II. The authors obtained tetracycline in crystalline form from chlortetracycline. They described various chemical properties of the product and gave data which indicated that removal of the halogen was the only structural change resulting from the reduction to tetracycline. The product was more stable in neutral or alkaline soln. than chlortetracycline.

—F.E.W.

ENGLISH, A. R., P'AN, S. Y., MCBRIDE, T. J., GARDOCKI, J. F., VAN HALSEMA, G. & WRIGHT, W. A. (1954). **Tetracycline—microbiologic, pharmacologic, and clinical evaluation.**—*Antibiot. & Chemother.* **4,** 411-422. [Spanish summary p. 489.] **2149**

From *in vitro* and *in vivo* tests, tetracycline ("tetracyn")—the chemical moiety common to oxytetracycline (terramycin) and chlortetracycline (aureomycin)—described by Conover *et al.* and Boothe *et al.* [see preceding abst.], had similar properties to both these antibiotics; it was effective in a conc. of 0·39 to 3·12 μg./ml. against 15 species of Gram-negative bacteria of 9 genera and inactive against strains of *Micrococcus pyogenes* var. *aureus* resistant to these two antibiotics and to others (penicillin, chloramphenicol, polymyxin, bacitracin and streptomycin) used in combination with them. Clinical tests appear to be warranted.—F.E.W.

PIRTKIEN, R. & TAMM, J. (1954). Die Beeinflussung der Überlebenszeit epinephrektomierter Goldhamster durch Tuberkulostatika, Vitamin B_{12}, Pantothensäure, Cystin und Irgapyrin. [**Effect of tuberculostatic drugs, vitamin B_{12}, pantothenic acid, cystine and "irgapyrin" on the survival of adrenalectomized hamsters.**]—*Acta endocr., Copenhagen.* **16,** 323-329. [In German. Abst. from English summary.] **2150**

After the daily administration of tuberculostatic drugs (thiosemicarbazones, *iso*-nicotinic acid hydrazide and streptomycin) a prolongation of the survival time of adrenalectomized hamsters was observed. The results were statistically significant. The daily administration of these drugs was only slightly less effective than a single dose of 2 mg. deoxycortone acetate injected postoperatively. The authors discussed the experimental and clinical effects and side-effects of the former drugs in relation to these findings. Penicillin, pantothenic acid, vitamin B_{12}, cystine and "irgapyrin" (an analgesic containing amidopyrine and dioxydiphenylbutyl pyrazolidine) had no effect on the survival time of adrenalectomized hamsters.

FRAPPIER, A. & PANISSET, M. (1951). Propriétés antimicrobiennes d'un remède indien: le "rognon de castor". **[Antibacterial properties of castoreum, an Indian remedy.]**—*Rev. canad. Biol.* **10,** 288. [Only abst. given. Abst. from abst.] **2151**

Castoreum from the urogenital gland of the beaver, is used by some Red Indians for dressing wounds. Glycol extracts of the material had same antibacterial activity against a number of organisms.—R. GWATKIN.

See also abstr. **1870** (antithyroid action of *para*-aminosalicylic acid); **1955** (antrycide methyl sulphate); **2015** (action of plant tannins on viruses); **2018** (viricidal action of ethylene oxide gas).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

JULIAN, L. M. (1953). **Studies on the developing chicken embryo with the use of radioactive phosphorus. I. Uptake of P^{32} by the body and selected tissues of the chicken embryo between the ninth and nineteenth day of incubation.**—*Amer. J. vet. Res.* **14,** 129-136. [Abst. from author's summary.] **2152**

JULIAN, L. M. & COLE, L. J. (1953). **Studies on the developing chicken embryo with the use of radioactive phosphorus. II. Incorporation of P^{32} into tissue phosphorus fractions.**—*Ibid.* 137-140. [Authors' summary modified.] **2153**

I. The authors studied the uptake of ^{32}P by the whole embryo, by the liver and by the chorioallantoic membrane of chick embryos injected after 9 days of incubation with the isotope *via* the yolk sac. In 66 hours 48% of the dose given had been taken up, after which the uptake was slower up to 251 hours, when 95% had been taken up. At 251 hours the conc. of ^{32}P per g. of liver was approx. equal to the conc. per g. of the embryo as a whole. In the chorioallantoic membrane the conc. was relatively high at first but later declined. By the 19th day of incubation approx. the entire dose was recovered from the embryo and the residual yolk.

II. The authors studied the incorporation of radio-active inorganic phosphate into the acid-soluble, phospholipoid, and nucleoprotein fractions of various tissues from newly hatched chicks.

The tissues showed an uptake range from 2·0 to 4·8% of ^{32}P dose per g. of tissue, with the following sequence: brain> liver> heart> whole blood> gizzard muscle> leg muscle. The brain exhibited the highest relative and absolute incorporation of ^{32}P into the phospholipoid fraction. Incorporation of the isotope into the nucleoprotein fraction accounted for at least half of the total ^{32}P uptake by all the other tissues.

EDERSTROM, H. E. (1954). **Blood flow changes in the dog during hyperthermia.**—*Amer. J. Physiol.* **176,** 347-351. **2154**

Venous outflow and pulse amplitude were measured in dogs in which hyperthermia had been induced by radiant heat and by dosage with dinitrophenol. Significant increases in the lingual veins only were noted: these began with the onset of panting.—JOHN SEAMER.

BENNETT, I. L., JR. & BEESON, P. B. (1953). **Studies on the pathogenesis of fever. I. The effect of injection of extracts and suspensions of uninfected rabbit tissues upon the body temperature of normal rabbits.**—*J. exp. Med.* **98,** 477-492. **2155**

Studies on fever production following injection into rabbits of leucocyte extracts or cell-free supernatant fluid from peritoneal exudates revealed that the material which causes fever is heat-labile. It is active over a pH range of 2·0 to 10·5 and retains its potency for 6 months at 4°C. It is not dialysable and leucocytes are probably not the sole source of the factor.
—J. A. NICHOLSON.

SMITH, A. U., LOVELOCK, J. E. & PARKES, A. S. (1954). **Resuscitation of hamsters after super-cooling or partial crystallization at body temperatures below 0°C.** [Correspondence.]—*Nature, Lond.* **173,** 1136-1137. **2156**

Using the method described by Andjus & Smith, (1954) it was found possible to revive six hamsters frozen for periods up to 15 min.; 7

animals frozen for more than 15 min. were revived imperfectly and died, but complete revival after freezing for 16 to 38 min. was effected in nine animals by the use of diathermy.

—J. A. NICHOLSON.

LEBLANC, J. (1954). **Subcutaneous fat and skin temperature.**—*Canad. J. Biochem. Physiol.* **32**, 354-358. **2157**

Fall of skin temperature is greater at the beginning of exposure and is faster at 70°F. than at 60° or 50°. Insulation provided by the subcutaneous fat layer increases as environmental temperature is lowered. Differences in average skin temperatures of different persons are due to variations in fat thickness.

—R. GWATKIN.

KERSLAKE, D. McK. (1955). **Factors concerned in the regulation of sweat production in man.** —*J. Physiol.* **127**, 280-296. [Author's summary modified.] **2158**

The literature on the relation of sweat rate to skin and deep body temperature is difficult to reconcile with the hypothesis of control of sweat rate depending on these two factors.

On the basis of previous work K. put forward the hypothesis that the sweat rate depends on the temperature of receptors situated at some depth in the skin. Observations on three subjects exercising in hot dry environments were consistent with this hypothesis irrespective of whether the steady state had been reached. The observed relation was not affected by raising the humidity to a moderately high level.

The same subjects at rest in warm and very humid environments showed the same relations between sweat rate and calculated deep skin temperature.

The findings suggest that the rate of sweat production may be controlled by the temperature of nerve endings situated at about the level of the superficial arterial plexus in the dermis.

KAY, R. N. B. (1954). **The effect of sympathetic stimulation on the flow of parotid saliva in the sheep.**—*J. Physiol.* **125**, No. 1, pp. 24P-25P of Proceedings. **2159**

Records of the continuous secretion of parotid saliva revealed that in chloralosed sheep a rapid increase in flow follows stimulation of the cervical sympathetic nerve. An increased flow was also observed after the i/v injection of adrenaline and oxytocin, but not after vasopressin. It was concluded that the effect of cervical sympathetic nerve stimulation is to promote the expulsion, but not the formation, of parotid saliva.—J. A. NICHOLSON.

FAWCETT, D. W. (1954). **Cytological and pharmacological observations on the release of histamine by mast cells.** — *J. exp. Med.* **100**, 217-224. **2160**

The i/p injection into rats of Tyrode solution containing "compound 48/80", a sympathetic histamine-releasing agent [*V.B.* **24**, 3642], causes an extensive release of granules from mast cells and the appearance of large amounts of histamine in the fluid.

—J. A. NICHOLSON.

GUNTER, R. (1954). **The spectral sensitivity of light-adapted cats.** — *J. Physiol.* **123**, 409-415. **2161**

An analysis of the results obtained from a study of the spectral sensitivity of the eyes of light-adapted cats as judged by behaviour reveals that there are two regions of maximal sensitivity; one region being isolated by the blue filter and the other by the yellow-green filter. Human and cat sensitivities in the blue show a close resemblance to one another.

—J. A. NICHOLSON.

COWIE, A. T., FOLLEY, S. J., CROSS, B. A., HARRIS, G. W., JACOBSOHN, D. & RICHARDSON, K. C. (1951). **Terminology for use in lactational physiology.**—*Nature, Lond.* **168**, 421. **2162**

The authors drew attention to ambiguity in the use of certain terminology in relation to the physiology of lactation, *e.g.* the verb "to suckle"—used by various authors to denote 'the activity of the lactating mammal or the young or both'. They referred to the scheme of terminology proposed by Folley in 1947 [*V.B.* **19**, 1950] and proposed additions to it, including the following:—

That "nursing" should be applied to the behaviour of the lactating mammal; that "suckling (milking)" should be applied to the activity of the young with the object of obtaining milk from the dam; that "suckling (milking) stimulus" should be applied to 'the sum of stimuli applied to the lactating mammal by suckling (or milking)'; and that "milk ejection" should be used for the phenomenon hitherto termed "let-down" (or "draught" in human beings), and should supersede these terms.

—F.E.W.

GUNTHER, M., KEITH, R. M., NAISH, C. & WALLER, H. (1954). **Terminology in lactational physiology.** [Correspondence.]—*Lancet.* **267**, 493-494. **2163**

A note appealing for the use of appropriate terminology in this field. Gunther *et al.* pointed out that the terms "liberation",

"ejection" and "expulsion" are unsuitable in connexion with the let-down of milk (and the corresponding draught reflex in human beings): they suggested that "propulsion" would be a more appropriate term. Incidentally they registered a strong protest against a suggestion made by Cowie *et al.* [see preceding abst.] that in lactational physiology the use of the verb "to suckle" should be restricted to the action of the offspring.—F. L. M. Dawson.

I. Cowie, A. T., Folley, S. J. & Richardson, K. C. (1954). **Terminology in lactational physiology.** [Correspondence.]—*Lancet.* **267,** 601-602. **2164**

II. Vertue, H. St. H. (1954). **Terminology in lactational physiology.** [Correspondence.]—*Lancet.* **267,** 708. **2165**

I. Cowie *et al.* concurred with Gunther *et al.* [see preceding abst.] that the term "liberation" [*loc. cit.*] is inappropriate, but defended the use of "ejection", a term first used by Gaines *et al.* (1915) in the U.S.A. Incidentally they referred to the expression "let-down" as an incorrect colloquialism.

They attempted, in some 500 words, to defend their suggestion that in scientific literature the use of the verb "to suckle" should be restricted to the activity of the young.

II. The author confirmed, by quotations from Dr. Samuel Johnson's *Dictionary* (1755), that in correct English usage ". . . mothers suckle: sucklings suck".—F.E.W.

Boguth, W. (1953). Papierelektrophoretische Serumuntersuchungen bei Haussäugetieren. I. **[Paper electrophoretic examination of the serum of domestic animals.]**—*Zbl. VetMed.* **1,** 168-187. [English, French and Spanish summaries.] **2166**

B. examined serum protein fractions in the dog, pig, goat, sheep, cow and horse. In some cases he gave figures for the animal during pregnancy, during the immediate *post-partum* period and for the new-born.

—C. W. Ottaway.

Reda, H. & Salem, H. (1954). **A study of calcium in the blood serum of Egyptian buffaloes and native and crossbred cattle.**—*Amer. J. vet. Res.* **15,** 561-563. [Authors' summary modified.] **2167**

The average calcium content of the serum of Egyptian buffaloes was 10 mg. per 100 ml.; that of Egyptian cattle was 9·2 mg. per 100 ml., and that of crossbred cattle was 8·5 mg. per 100 ml. The Ca content was higher in males than in females, and higher in pregnant cows than in non-pregnant cows. It increased during pregnancy, reaching a maximum a week before parturition, and falling below normal for a day or two after parturition.

Evans, J. W. (1954). **Electrolyte concentrations in red blood cells of British breeds of sheep.** [Correspondence.] — *Nature, Lond.* **174,** 931-932. **2168**

Determinations of the blood sodium and potassium in different breeds of sheep revealed that two types exist, one in which K ranges about a mean value of 36 m. equiv. per litre and the other in which K ranges about a mean of 13 m. equiv. per litre.—J. A. Nicholson.

Wilson, A. T. (1953). **The egestion of phagocytized particles by leukocytes.**—*J. exp. Med.* **98,** 305-310. **2169**

Observations on suspensions of bacteria in blood by phase contrast microscopy revealed that streptococci phagocytized by human or mouse leucocytes were usually enclosed in a digestive vacuole. The vacuole emptied itself periodically, extracellular multiplication of the egested streptococci depending upon how long they had been in the vacuole.

—J. A. Nicholson.

Hamilton, L. H. & Horvath, S. M. (1954). **Immediate blood cell count response to epinephrine in splenectomized dogs.** — *Amer. J. Physiol.* **178,** 58-62. **2170**

The authors had previously found that in normal dogs a large i/v injection of epinephrine is followed by erythrocytosis and mobilization of leucocytes within 5 min. In splenectomized dogs tested simultaneously in 3 different areas of the circulation, no such erythrocytosis occurred, nor was any abnormal mobilization of leucocytes demonstrable during the first 2 min. after the injection, though certain modifications in the leucocyte picture were evident 2–5 min. after the injection. It would therefore appear that the spleen plays some role in the response of the blood to epinephrine.—G. P. Marshall.

Louwerens, B. & Smelik, P. G. (1954). **The mechanism by which implanted oestradiol delays the eosinopenic response to stress.**—*Acta endocr., Copenhagen.* **16,** 377-385. [In English. Authors' summary modified.] **2171**

Implanted oestradiol benzoate delays for about one hour the eosinopenia which is caused by the withdrawal of 5 blood samples at hourly intervals from the tail of female rats.

As no delay of the eosinopenia could be observed after administration of A.C.T.H. or epinephrine to implanted animals it was

assumed that the block caused by oestradiol is not located in the adrenal or hypophysis. The effect of epinephrine on the eosinophile in this case was mediated by the hypophysis and adrenals as was shown by experiments on hypophysectomized or adrenalectomized animals.

No evidence could be obtained in favour of a blocking action on the hypothalamus by oestradiol.

A delay identical to that produced by oestradiol is caused by blocking the "autonomic phase" of the stress mechanism in different ways and hence it is possible that oestradiol is capable of blocking this phase as well. The authors suggested that oestradiol influences the autonomic pathways, which are believed to be involved in this phase.

GRANAAT, D. (1953). **The spleen in the regulation of the arterial blood pressure.** — *J. Physiol.* **122,** 209-219. **2172**

When injected into the splenic artery of the dog, adrenaline and noradrenaline produce a more prolonged pressor response than when injected into the femoral vein. The effects of splenic extracts resemble those of noradrenaline, but injection of 10–80 ml. of blood into the portal circulation produces little effect. It is, therefore, suggested that the pressor response from splenic contraction is due to a release of noradrenaline, adrenaline and an unknown active principle, rather than to an increase in circulatory volume.—A. SEAMAN.

I. WIDDICOMBE, J. G. (1954). **Receptors in the trachea and bronchi of the cat.** — *J. Physiol.* **123,** 71-104. **2173**

II. WIDDICOMBE, J. G. (1954). **Respiratory reflexes from the trachea and bronchi of the cat.**—*Ibid.* 55-70. **2174**

III. WIDDICOMBE, J. G. (1954). **Respiratory reflexes excited by inflation of the lungs.**—*Ibid.* 105-115. **2175**

I. Three types of respiratory receptors were identified in the tracheobronchial tree of the cat. Half are adapted to distension and collapse of the air passages; a quarter to inflation and deflation of the trachea and the remainder are thought to be cough receptors for chemical as well as mechanical stimuli.

II. N. established the existence of four reflexes arising from the tracheobronchial tree in the cat. A mechanical cough reflex, particularly from stimulation of the larynx, exists; volume changes of the air passages cause a short cough; sulphur dioxide in the pulmonary tubes causes vigorous coughing and lastly there is a reflex quickening to the respiratory cycle following large negative pressures in the airways.

III. In addition to the Hering-Breuer and excitatory reflexes a third reflex can be elicited in the lungs of a cat. It is a short inhibition of inspiration produced by large pulmonary inflation.—J. A. NICHOLSON.

I. BANNISTER, R. G. & CUNNINGHAM, D. J. C. (1954). **The effects on the respiration and performance during exercise of adding oxygen to the inspired air.** — *J. Physiol.* **125,** 118-137. **2176**

II. BANNISTER, R. G., CUNNINGHAM, D. J. C. & DOUGLAS, C. G. (1954). **The carbon dioxide stimulus to breathing in severe exercise.** —*Ibid.* 90-117. **2177**

I. A study of the pulmonary ventilation of two athletic and two non-athletic subjects on a motor driven treadmill showed that performance was best improved by the addition of 66% O_2 to the inspired air. The existence of an unknown substance liberated by muscles working under partially anaerobic conditions could not be demonstrated.

II. A study of the pulmonary ventilation of two athletic and two non-athletic subjects on a motor driven treadmill showed that the accumulation of lactate and the raised body temperature depressed the threshold of the respiratory centre to CO_2. These factors combined would account for the greater part of the hyperpnoea of severe exercise.—J. A. NICHOLSON.

BAKER, B. L. & BRIDGMAN, R. M. (1954). **The histology of the gastro-intestinal mucosa (rat) after adrenalectomy or administration of adrenocortical hormones.** — *Amer. J. Anat.* **94,** 363-397. **2178**

In human patients with Addison's disease, gastro-intestinal symptoms are common. Histological studies on rats revealed that, following adrenalectomy, stomach zymogenic cells were smaller, degranulated, and had less basophilic cytoplasm. Whole rats given cortisone showed largely the opposite changes, suggesting that A.C.T.H. stimulates the secretion. However, both procedures increased the size and granulation of the duodenal Paneth cells.

—F. L. M. DAWSON.

STURTEVANT, F. M. & HANSEN, N. (1955). **Increased sensitivity to salt in rats pretreated with desoxycorticosterone.**—*Amer. J. med. Sci.* **229,** 188-190. [Authors' summary copied *verbatim.*] **2179**

In rats with a recent history of transient desoxycorticosterone-saline hypertension, there

is a temporarily increased sensitivity to the hypertensive action of isotonic sodium chloride solution as drinking fluid.

SALVESEN, H. A. (1954). **A note on the relation of the parathyroids to carbohydrate metabolism.**—*Acta endocr., Copenhagen.* **16,** 349-354. [In English. Author's summary modified.] **2180**

S. found that the parathyroids exert an indirect influence on carbohydrate metabolism through their control of the serum calcium level. In completely parathyroidectomized dogs (with sufficient thyroid tissue left to prevent hypothyroidism) glucose tolerance, *i.e.*, the amount of glucose given by stomach tube necessary to produce glucosuria, was dependent on the serum calcium level, being low when the serum calcium was low and tetany had occurred and very high when the serum calcium was normal or nearly normal after forced calcium feeding. S. discussed the effect of forced glucose feeding on the inorganic serum phosphorus.

CATCOTT, E. J. & GRIESEMER, R. A. (1954). **A study of corneal healing in the dog.**—*Amer. J. vet. Res.* **15,** 261-265. **2181**

The authors described a method of abrading the cornea of dogs with a sclerotomy knife, by which lesions uniform in size and intensity were produced. When a source of beta rays was applied to the injured cornea 3 days after abrasion, the rate of healing was slower.—R.M.

SCHULZ, L.-C. (1953). Entwicklungsmechanisch bedingte physiologische Aplasien in der Kleinhirnrinde beim Haus- und Wildschwein. **[Cerebellar aplasia in domestic and wild pigs.]**—*Inaug. Diss., Hanover.* pp. 26. **2182**

S. examined the cerebellum of 59 domestic and 2 wild pigs of varying age, which had died from various causes. In all the material examined small areas of the cortex were absent from parts of the tuber vermis of the cerebellum. These lesions were unaccompanied by inflammatory changes, and S. concluded that they resulted from compression during the rapid growth and subsequent distortion of the tuber vermis during foetal life. He also observed generalized hypoplasia of the cerebellum in two piglets associated with ataxia in one and contracted tendons with ankylosis in the other. —R.M.

KÖHLER, H. (1952/53). Histologie und Histopathologie der wichtigsten vegetativen Ganglien unserer Haussäugetiere. **[Histology and histopathology of the autonomic ganglia in domestic mammals.]** — *Arch. exp. VetMed.* **6,** 403-478. **2183**

In this paper illustrated with black and white drawings K. discussed the microscopic arrangement of the autonomic ganglia in the major domestic species. In one section he dealt with changes which might be attributed to age and in another with the effect on the ganglia of the presence of disease processes, of which reticulo-peritonitis in the ox received special mention.—C. W. OTTAWAY.

See also absts. **1863** (influence of cysteinamine in tuberculin sensitivity); **2130** (action of 7-ketocholesterol); **2238, 2239** (books, cytology); **2240** (book, endocrinology).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

KÄSTLI, P. (1954). Zur Frage der Milchqualität in der Schweiz. **[Milk quality in Switzerland.]**—*Schweiz. Arch. Tierheilk.* **96,** 1-11. [English, French and Italian summaries.] **2184**

K. discussed the quality of consumer milk in Switzerland in general terms, and made some suggestions for improvement—A.S.

JÖHNK, M. (1954). Tiere im Luftkrieg. **[Animals and air-raids.]**—*Dtsch. tierärztl. Wschr.* **61,** 181-186. **2185**

J. gave a general account of the behaviour of animals during air raids, based on experience in Germany in the second world war, and described measures taken to deal with animal casualties.

Where animals suitable for human consumption were seriously wounded it was customary to slaughter them on the spot, and eviscerate them immediately.—A.S.

ANON. (1953). **Veterinary research centres in Africa south of the Sahara. IV. Laboratorio de Patologia Veterinaria, Moçambique, Veterinary Laboratories, Lourenço Marques.**—*Bull. epiz. Dis. Afr.* **1,** 344-347 & 349. [In English and French.] **2186**

The laboratories were built in 1928. The present buildings are inadequate although the equipment is modern. The lymph production centre for smallpox vaccine is situated in the grounds; this centre is lavishly equipped and is controlled by the Director of the Veterinary Laboratories. Extension of the veterinary laboratories is now in hand. Facilities for the

breeding of the various species of small laboratory animals are provided for in the plans.
—W. S. MARSHALL.

ANON. (1953). Nový způsob provádění veterinární služby v Mad'arsku. [**Veterinary services in Hungary.**]—*Veterinářství, Brno.* **3**, 290-291. **2187**

A note on legislation in Hungary, dating from the 12th June 1953, providing for free veterinary services to farmers. To alleviate the heavy burden on the profession in its initial strength various facilities will be provided, including comfortable housing, clinics and dispensaries, and arrangements for easier motoring; technical assistants or "feldschers" will be assigned to help in the work. It is expected that earlier diagnosis of disease outbreaks will be possible. It is estimated that the peasant farmer will be enabled to save 50 million florins a year.—I. MARTINI.

POPOV, A. T. (1954). [**Veterinary work in Bulgaria.**]—*Veterinariya, Moscow.* **31**, No. 9, pp. 14-17. [In Russian.] **2188**

The veterinary service in Bulgaria had been mostly under government control since its inception in 1878. Since the second world war the system has followed Russian methods and it is claimed that a number of hitherto endemic diseases have been either nearly eradicated or their incidence much reduced. Measures against helminths and ticks and a study of dermatology appear to be the main concerns of the Central Veterinary Bacteriological Institute in Sofia with its branches in other parts of the country. Mobile laboratories play an important part in the practical clinical work on farms.

Statements here made are of a general nature and no details are given.—F. A. ABBEY.

See also abstr. **1867** (human contacts with tuberculin positive cows); **2226** (report. Northern Ireland).

LIVESTOCK HYGIENE

WILKINS, E. T. (1954). **Air pollution and the London fog of December 1952.**—*J.R. sanit. Inst.* **74**, 2-21. **2189**

W. gave a brief historical survey of fog and "smog", some details of chemical substances present normally in town air, and the meteorological conditions producing fog. Details of the substances present during the 1952 "smog" are followed by a discussion on their toxicity. The sulphuric acid mist reached concentrations that might have slight physiological effects, but it is probable that the high mortality was due to harmful compounds or mixtures of substances that are considered harmless alone. In the course of a lengthy discussion on the paper it was pointed out that "fog fever" (oedematous emphysema) of fat cattle was not associated with atmospheric fog but with grazing on "aftermath" or "foggage" grass.
—R. MACGREGOR.

See also abst. **2031** (parasitology of deep litter).

REPRODUCTION AND REPRODUCTIVE DISORDERS

SCHÄPER, W. (1954). Für und wider die künstliche Besamung. [**A discussion of the advantages and disadvantages of artificial insemination.**]—*Zootechnia, Madrid.* **3**, 78-104. [In German. French and Spanish summaries.] **2190**

A general discussion on the problems of selective breeding, health, performance, and body conformation as influenced by artificial insemination.—C. W. OTTAWAY.

CORONEL, A. B. (1953). **Some observations on artificial insemination of swine in the Philippines.**—*Philipp. J. Anim. Indust.* **14**, 227-284. **2191**

An account of the artificial insemination of pigs in the Philippines during the period December 1950-March 1953. Out of 271 sows and gilts inseminated, only 66 became pregnant.
—R.M.

ROY, A. & BISHOP, M. W. H. (1954). **Effect of glycine on the survival of bull spermatozoa *in vitro*.** [Correspondence.]—*Nature, Lond.* **174**, 746-747. **2192**

The authors found that, using Sorensen's glycine buffer solution, the maximal survival of bull spermatozoa is not obtained until the final glycine content is at least 0·26 M.
—J. A. NICHOLSON.

KOEFOED-JOHNSEN, H. H. & MANN, T. (1954). **Studies on the metabolism of semen. IX. Effect of surface active agents with special reference to the oxidation of succinate by spermatozoa.**—*Biochem. J.* **57**, 406-410. **2193**

Certain surface active compounds, including ionic and non-ionic detergents, were found to inhibit motility, fructolysis and respiration of ram spermatozoa.—J. A. NICHOLSON.

KIDDER, H. E., BLACK, W. G., WILTBANK, J. N., ULBERG, L. C. & CASIDA, L. E. (1954). **Fertilization rates and embryonic death rates in cows bred to bulls of different levels of fertility.**—*J. Dairy Sci.* **37,** 690-697. [Authors' summary modified.] **2194**

Holstein and Guernsey bulls of different non-return rates in artificial insemination were compared to determine their fertilization rates and to estimate their embryonic death rates. The 64 bulls for which fertilization tests were made on first service heifers had an average non-return of 65·1%, a fertilization rate of 85·9%, and an embryonic death rate, estimated as the percentage of fertilized ova that died, of 21·0%. When the bulls were divided according to non-return rates into a high half (67–79%) and a low half (40–66%), they had fertilization rates of 100% and 71·9% ($P<0·01$) and embryonic death estimates of 25·5% and 14·9% for the high and low fertility bulls, respectively.

The differences were not significant between the fertilization rates of the Holsteins (89·2%) and Guernseys (81·5%). The non-return rates of 65·8% and 64·0% were similar.

It appears from this study that approx. 40% of all potential young in dairy cattle are lost by 60–90 days after breeding. Their loss may be estimated as 3% due to genital abnormalities of the cow, 9% to defective ova, 12% to failure of fertilization resulting from undetermined causes, and 16% to death of the embryo, all calculated as percentages of the potential young producible by a female group.

HADEK, R. (1954). **Observations on secretory activity in the oviduct of the ewe.**—*J. Anat., Lond.* **88,** 564. [Only abst. given. Abst. from abst.] **2195**

Observations on oviducts from 60 sheep revealed that the height of the epithelial cells increased during pro-oestrus and oestrus, was unchanged during metoestrus and decreased during dioestrus and anoestrus. Secretory material and alkaline phosphatase were found in the lumen of the oviduct during metoestrus.

—J. A. NICHOLSON.

BASSET, E. G. & PHILLIPS, D. S. M. (1954). **Pelvic relaxation in sheep.** [Correspondence.] —*Nature, Lond.* **174,** 1020-1021. **2196**

Examination following slaughter of 60 sheep in different stages of pregnancy revealed that there was no relaxation in the pubic symphysis at any stage, but that loosening of the sacro-iliac joints and ligaments began between the second and third months. It was possible to produce loosening of the sacro-iliac joints of spayed sheep by oestrogenic stimulation alone, but further work is necessary to study the role of the relaxin hormone.—J. A. NICHOLSON.

FRAPS, R. M. & CONNER, M. H. (1954). **Neurohypophysial control of follicular maturation in the domestic fowl.** [Correspondence.]—*Nature, Lond.* **174,** 1148-1149. **2197**

It was found that in hens ovulation can be suppressed by the administration of barbiturates and other blocking agents including atropine sulphate. This almost certainly indicates a nervous mechanism controlling some essential pre-ovulatory process, probably the secretion of hypophyseal hormone required for the maintenance and function of the maturing ovarian follicle.—J. A. NICHOLSON.

BAIER, W. (1953). Farbaufnahmen des Scheidengrundes bei Rind und Pferd. **[Colour photographs of the normal and diseased cervix of cows and mares.]** — *Vet.-med. Nachr.* No. 1, 3-12. **2198**

B. described the technique of taking colour photographs of the cervix of the cow and the mare, using a camera attached to an illuminated vaginal speculum. There are illustrations of 8 photographs taken by this method.—R.M.

TEUNISSEN, G. H. B. (1952). **The development of endometritis in the dog and the effect of oestradiol and progesterone on the uterus.**—*Acta endocr., Copenhagen.* **9,** 407-420. **2199**

T. studied the possible role of oestrogen and progesterone in the pathogenesis of chronic hyperplastic endometritis in the bitch. He succeeded in setting up the condition by injecting intramuscularly 5–60 mg. progesterone every second day for 24–54 days. Bacterial infection and pyometra were often present. Inflammation subsided with the cessation of progesterone injections, and re-commenced when administration of the hormone was renewed. Oestradiol did not seem to be capable of causing endometritis.—R.M.

CHRISTOPH, H.-J. (1954). Über den Ablauf der Blutsenkungsreaktion nach Westergren bei der glandulären Hyperplasie der Hündin. **[The blood sedimentation reaction in glandular hyperplasia in bitches.]**—*Mh. VetMed.* **9,** 156-157. **2200**

The blood sedimentation rate was raised in 36 out of 42 cases of canine cystic hyperplastic endometritis.—W. G. SILLER.

SPEERT, H. & GUTTMACHER, A. F. (1954). **Frequency and significance of bleeding in early pregnancy.**—*J. Amer. med. Ass.* **155,** 712-715. [Abst. from authors' summary.] **2201**

Comparative embryological studies have

shown that extravasation of maternal blood into the brood chamber during pregnancy is of widespread occurrence among the vertebrates. This bleeding supplements the pabulum with haemic elements and provides an important source of iron for the foetus. In some species, notably the rat and the macaque, the physiological extravasation of blood into the uterus becomes manifest by the presence of r.b.c. in the vagina and is known as the placental sign. Such bleeding occurs normally in many women between the 33rd and 60th days of pregnancy.

LABBAN, F. M. (1954). **Effect of thyroxine on sexual behaviour in the ewe.** [Correspondence.]—*Nature, Lond.* **174,** 933. **2202**

It was observed that following thyroxine administration to ewes, hyper-sexual activities characteristic of male behaviour were exhibited. However, laparotomy did not reveal any abnormal ovarian activity, and it was concluded that further knowledge of the effects of hyperthyroidism is highly desirable.

—J. A. NICHOLSON.

EDGAR, D. G. (1954). **Progesterone secretion in ewes.** [Correspondence.]—*Nature, Lond.* **173,** 639-640. **2203**

In 51 ewes, the amount of progesterone present in blood from the ovarian vein was less than 0·1 μg. for the first two days of the average 17-day oestrous cycle. The amount then increased up till the ninth day and remained level until the end of the 16th day when it fell suddenly. Progesterone could not be detected in blood from the jugular vein. There was a considerable variation in the amount present in different sheep on the same day of the oestrous cycle. The absolute amount of progesterone present at one moment may be less important than the daily total or even than a minimal quantity.—A. ACKROYD.

THOMPSON, J. S. (1955). **An effect of estrogens on water intake.** — *Canad. J. Biochem. Physiol.* **33,** 10-13. **2204**

Subcutaneous implants of oestradiol and cholesterol produced the expected dilatation of the urinary bladder and also an increase in water intake in 2 strains of mice. When the water intake was restricted the dilatation of the bladder was less severe. With a third strain of mice neither dilatation of the bladder nor increased water intake occurred.—R. GWATKIN.

HYDE, P. M., DOISY, E. A., JR., ELLIOTT, W. H. & DOISY, E. A. (1954). **Absorption of enterally administered 17α-methyl-C^{14}-testosterone and its metabolites.**—*J. biol. Chem.* **209,** 257-263. **2205**

Experiments with rats using methyl-^{14}C-testosterone intragastrically showed that less than 1·5% of the radio-activity could be demonstrated in the lymph from the thoracic duct. Examination of blood from the portal vein and inferior vena cava revealed that methyl-^{14}C-testosterone reaches the liver *via* the portal route.—J. A. NICHOLSON.

GALLIGANI, G. (1954). Cenni di endocrinologia e fisiopatologia dello apparecchio sessuale maschile in relazione alla impotentia coeundi del toro. **[Endocrinology and pathology in relation to impotentia coeundi of the bull.]** —*Zootec. e Vet.* **9,** 382-386. **2206**

A note on the physiology of the genital organs of the bull and the part played by nervous and hormonal stimuli, vitamins and mineral salts in producing sexual excitement and ensuring normal coition. G. enumerated the various causes of dysfunction in the bull, including impotentia coeundi of psychological origin.

—T. E. GATT RUTTER.

ROWSON, L. E. A. (1954). **Infertility in cow, sow and bitch.**—*Irish vet. J.* **8,** 216-221. Discussion: pp. 221-227. **2207**

The common forms of treatment for infertility in cattle are the injection of stilboestrol or pregnant mare's serum. Hormone injections should not be carried out unless the ovaries have been examined on at least two occasions, as it sometimes happens that cows are going through a normal cycle but not showing oestrus and, if so, hormone injections will induce the formation of additional follicles which will not rupture.

Adhesions in the fallopian tubes and failure of implantation are common causes of infertility, but the main factor in cases of temporary infertility is an upset in the levels of the ovarian hormones.—J. A. NICHOLSON.

BARRACLOUGH, C. A. & LEATHEM, J. H. (1954). **Infertility induced in mice by a single injection of testosterone propionate.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 673-674. [Authors' summary modified.] **2208**

Mice 5, 10 and 20 days of age were given a single 1 mg. injection of testosterone propionate. Fertility was tested when these mice were 3 months old and compared with litter-mate controls. No litters were obtained with mice treated at 5 days of age despite their being kept with fertile males for 100 days. Fertility of mice treated when 20 days old, however, was not decreased where as mice treated at 10 days of age assumed an intermediate position.

DOBROKHOTOV, A. M. (1954). **[The problem of female sterility in farm animals.]**—*Veterinariya, Moscow.* **31,** No. 6, pp. 39-44. [In Russian.] **2209**

Over 40 papers were read at a conference dealing with the abnormally high incidence of sterility in farm animals in many places. The main causal factors were stated to be general bad management, unsuitable feeding, poor housing, ignorance about the physiology of mating and of the technique of artificial insemination.

Lack of the physiological stimulus by artificial insemination as compared with natural mating was said to be one cause of infertility. Both diluted preserved semen and pooled semen from several donors were found to yield a higher conception rate.—F. A. ABBEY.

MORLEY, F. H. W. (1954). **The importance and genetic control of undesirable recessive genes in livestock.**—*J. Aust. Inst. agric. Sci.* **20,** 143-150. **2210**

The increased use of artificial insemination has caused speculation on possible increases in the frequency of undesirable recessive genes. M. examined the probable situation in livestock by the use of reasonable assumptions about the applicability of statistics available (mainly from experiments with *Drosophila*) as well as scanty information from farm animals.

Most individuals are probably heterozygous for at least one deleterious recessive gene, but homozygote expression is likely to be at low levels. Not all such genes are important economically. In artificial and other breeding units the frequency of expression may be kept at low levels by avoiding inbreeding and by the exchange of semen or of sires between units. The frequency of undesirable genes is reduced or held at equilibrium levels by mass selection. Where possible, pedigree selection will also reduce the frequency of expression of such genes. Special test matings, such as sire-daughter, are generally unlikely to be sufficiently effective to offset their disadvantages.—A. A. DUNLOP.

MYERS, L. (1955). **Experimentally induced anomalies of the internal ears of albino rat embryos.**—*S. Afr. J. Sci.* **51,** 214-216. [Author's summary modified.] **2211**

M. described anomalies of the internal ear of two 16-day rat embryos, the mothers of which had been given injections of trypanblue. Among the anomalies recognized were absence or partial suppression of one or more semicircular canals; absence of the endolymphatic duct and sac; non-coiling of the trochlea. These malformations were bilateral in one embryo and unilateral in the other.

See also absts. **1932** (survival of bacteria in semen); **1941** (orchitis in cattle); **2003** (ulceration of the prepuce in pigs); **2007** (reproductive tract in Newcastle disease); **2162-2165** (terminology in lactational physiology); **2219** (artificial induction of lactation in sheep); **2230** (report, U.S.A.); **2241** (book, fertility and infertility in domestic animals).

ZOOTECHNY

ARAÑEZ, J. B. & JACALNE, A. V. (1953). **Caponization of native drakes.** — *J. Amer. vet. med. Ass.* **123,** 315-320. **2212**

An account of a surgical technique for caponizing drakes in the Philippines. The best results are obtained at two months of age. —J.D.

I. VAN DER BEEK, M. (1955). Welke gewaarwordingen ondervinden patiënten bij wie electroshock of electronarcose wordt toegepast en in het bijzonder of daarbij angst- of pijngevoelens worden ondervonden. **[Experience of human beings subjected to electric shock or electric narcosis, with particular reference to anxiety and pain.]** — *Tijdschr. Diergeneesk.* **80,** 104-114. Discussion: pp. 138-149. **2213**

II. ROMIJN, C. (1955). Enkele physiologische beschouwingen naar aanleiding van de electrische schedeldoorstroming bij slachtdieren. **[Some physiological aspects of the induction of electric shock through the skull of slaughter animals.]** — *Ibid.* 115-121. Discussion: pp. 138-149. **2214**

III. STEGENGA, A. (1955). Maatregelen en voorzorgen ter bescherming van gebruikers van toestellen voor het electrisch bedwelmen van dieren. **[Rules for the protection of persons using electrical stunning apparatus.]**—*Ibid.* 122. Discussion: pp. 138-149. **2215**

IV. STUART, K. L. (1955). Bouw, inrichting en werkwijze van de bij dieren te gebruiken electro-shock en electro-narcose apparaten, in het bijzonder die, welke bij de electrische bedwelming van slachtdieren worden gebruikt. **[Construction and mode of action of electro-shock and electro-narcosis apparatus, particularly that used for stunning slaughter animals.]**—*Ibid.* 123-128. Discussion: pp. 138-149. **2216**

V. HOUTHUIS, M. J. J. (1955). Slachttechnische, maatschappelijke en andere motieven, waarom het wenselijk is om thans, naast de

reeds toegelaten, ook de electrische bedwelmingsmethode onder strenge contrôle toe te laten. **[Technique of electric stunning of slaughter animals.]**—*Ibid.* 129-137. Discussion: pp. 138-149. **2217**

I. In human beings subjected to electronarcosis loss of consciousness is immediate.

II. As an objective investigation in animals is impossible, conclusions about their sensations during electrical stunning can be derived only from observations in human beings.

III. A discussion of the dangers for persons working with electrical stunning apparatus.

IV. The construction of stunning apparatus should guarantee accurate dosage of electric current, and should ensure that passage of current through the skull is not interrupted by the resistance of the skin. A warning light should be incorporated in the apparatus to indicate when it is switched on.

V. Electrical stunning is the method of choice on humane grounds. H. reported, from personal observation, that after shooting by captive-bolt pistol some reflexes are still present. For example, pigs that have been shot often react when they are thrown into hot water, and cattle evince pain when the shot-wound in the brain is probed. On the other hand electrical stunning results in immediate unconsciousness. Only a few movements of the limbs occur, and as soon as these cease the animal can be bled.

—C. A. VAN DORSSEN.

STAROSEL'SKI, L. S. (1954). **[Methods of rearing calves.]**—*Veterinariya, Moscow.* **31,** No. 9, pp. 21-25. [In Russian.] **2218**

S. described methods employed in rearing calves in pens in unheated byres in winter and, still mainly in pens, out of doors in summer. He gave details of methods of feeding and general management. He claimed that cattle that had been so reared were healthy, resistant to disease, better milkers and of heavier weight than those reared by conventional methods.

—F. A. ABBEY.

MCPHERSON, E. A. (1955). **Artificially induced lactation in sheep.**—*Vet. Rec.* **67,** 200-202. [Author's summary slightly modified.] **2219**

Lactation was successfully induced in barren anoestrous ewes; they proved good foster mothers for lambs. A single dose of 40 mg. stilboestrol dipropionate in oil was most effective. The procedure was harmless to ewes.

KUMSIEV, S. A. (1954). **[Accelerated regurgitation of the contents of the stomach in cattle by use of a tube.]**—*Veterinariya, Moscow.* **31,** No. 4, pp. 55-57. [In Russian.] **2220**

As various methods used for evacuation of the contents of the reticulum in cases of atony, including pumping out by means of a single tube, had often proved unsatisfactory, K. used two tubes, one through each nostril. Water was gently pumped into one tube, the contents of the reticulum causing the stoppage being thereby softened and ejected through the other tube. This was aided by causing a vacuum in the ejector tube.—F. A. ABBEY.

TECHNIQUE AND APPARATUS

BLAGG, W., SCHLOEGEL, E. L., MANSOUR, N. S. & KHALAF, G. I. (1955). **A new concentration technic for the demonstration of protozoa and helminth eggs in feces.**—*Amer. J. trop. Med. Hyg.* **4,** 23-28. **2221**

The authors found that a modification of the thiomersal ("merthiolate")—iodine-formaldehyde method of staining described by Sapero & Lawless (1953), by the use of a concentration (sedimentation) technique, enabled a more accurate differentiation of helminth ova and protozoan parasites in faeces.—F.E.W.

ERÄNKÖ, O. (1954). **A simple apparatus for freeze-drying of animal tissues.**—*Acta path. microbiol. scand.* **35,** 426-432. [In English.] [Author's summary modified.] **2222**

E. described a simple and inexpensive freeze-drying apparatus consisting of an inner glass tube connected with a standard ground joint to an outer tube, and of a two-stage mechanical pump for evacuating the space between the two tubes. The design is based on the principle of short-path condensation. Diethyl oxalate and solid CO_2 are used to produce a constant tissue temperature of $-44°C$. The trap wall is cooled either with liquid air or with a mixture of solid CO_2 and ethyl alcohol or acetone. Freshly cut sections can be dried with the apparatus in less than an hour and small tissue pieces in 1–2 days.

GROSSKOPF, J. F. W. (1954). **A simplified operation for the preparation of abomasal pouches in calves.**—*J. S. Afr. vet. med. Ass.* **25,** 59-62. **2223**

A pouch of the abomasum was prepared by inserting a line of sutures from the outer surface of one wall of the organ across the inside of the organ and out at the external surface of

the opposite wall. By this method it was not necessary to incise the abomasum, except for insertion of the fistula tube. The line along which the two mucosal surfaces were held in apposition by the sutures, separating the pouch from the rest of the abomasum, was found to be perfectly united 6 weeks after operation.

—R.M.

See also absts. **1861** (blood media for cultivation of *M. tuberculosis*); **1945** (demonstration of fungi in paraffin sections); **2040** (suction traps for insects); **2237** (book, *post-mortem* technique).

REPORTS

GREAT BRITAIN. (1953). **The Hannah Dairy Research Institute. Report for the three years ending 31st March 1953. Twenty-second to twenty-fourth annual reports (combined).** pp. 34. Ayr: The Institute. **2224**

Dr. J. A. B. Smith was appointed Director of the Institute from the 1st Dec. 1950 in succession to Dr. Wright, who had held the post for the previous 20 years.

The new buildings were opened on the 20th April 1951.

From the foundation of the Institute, the work has been regarded as falling into two categories; biological research and technical research. The biological research has a direct bearing on the actual production of milk, while the technical problems are those associated with the handling of milk before it leaves the farms.

The research falls into the following classes:—

GRASS AND DAIRY HUSBANDRY. Experiments have been conducted on the greater use of grass for milk production to save imported feeding stuffs. In one year, 40 cows and 35 calves and heifers were fed exclusively on grass and grass-products from 100 acres. The production per acre amounted to 241 gal. of milk and 146 lb. of live weight gained.

BIOCHEMISTRY. Work was done on:—(1) the biochemical processes occurring in the rumen of the cow; (2) the metabolism of carotene and vitamin A and (3) the effect of thyroxine and thiouracil on the composition of colostrum and milk secreted by cows and goats, but with special reference to some constituents which are present only in small amounts but exert a great importance nutritionally.

NUTRITION. This was chiefly calf-nutrition and metabolism. The incidence of MUSCULAR DYSTROPHY in young calves and its connexion with VITAMIN E DEFICIENCY and cod-liver oil feeding has been investigated.

PHYSIOLOGY. The physiology of heat-regulation in cattle was studied to ascertain the best type of cattle for export to semi-tropical countries.

VETERINARY PATHOLOGY. The main work has been on some further studies on MASTITIS.

BACTERIOLOGY. Work in this department has been connected with methods by which the bacteriological properties of milk and milk-products can be assessed and improved.

TECHNICAL CHEMISTRY. Research was first on milk and milk-products and secondly on grass.—D. S. RABAGLIATI.

GREAT BRITAIN. (1953). **Imperial Cancer Research Fund. Fiftieth annual report 1952-53.** pp. 46. London: Taylor & Francis Ltd. **2225**

Research work in progress was outlined, including heterologous transplantation of mammalian, avian and other tumours into the eye of the g. pig; ASCITES TUMOURS, the importance of this type being that the tumour cells multiply in a free state in the peritoneal exudate they induce; the FOWL LEUCOSIS COMPLEX, particularly AVIAN LYMPHOMATOSIS — the question whether the lymphoid tumour cell is alone concerned in the transmission of the latter condition or whether a highly labile virus is associated with it, is being studied; hormones in relation to spontaneous tumours; carcinogenesis in relation to the metabolism of *p*-aminobenzoic acid and its significance to the mechanism of carcinogenesis and to human clinico-pathological problems being studied.—J. A. GRIFFITHS.

NORTHERN IRELAND. (1953). **County Borough of Belfast. Extract (City Veterinarian) from Report on the health of the County Borough of Belfast for the year 1952.** [MCLEAN, A.] pp. 8. Belfast: W. & S. Magowan Ltd. **2226**

The total of animals slaughtered was 164,615 and 0·91% of the carcasses were condemned. Of the 1,507 total condemnations of carcasses (including sheep, goats and pigs and all reasons for condemnation) 1,042 were cattle; 167 (16·03%) were condemned for TUBERCULOSIS.

Cysticercus bovis was present in 0·45% of all cattle. In three carcasses the infestation was generalized; in all other cases the parasites were in the masseter muscles.—J. A. GRIFFITHS.

CANADA. (1954). **Province of British Columbia. Department of Agriculture. Forty-eighth Annual Report, 1953.** pp. 211. Victoria, B.C.: Don McDiarmid. [Report of Dairy, Poultry and Livestock Branches pp. 73-126.] **2227**

In 1953 there were 94,000 dairy cows, 26,000 heifers and 81,000 calves on farms in B.C.

Respiratory diseases continue to be the major disease problem confronting the poultry industry. INFECTIOUS BRONCHITIS and "CHRONIC RESPIRATORY DISEASE" cause most of the trouble. NEWCASTLE DISEASE is not serious in areas where vaccination is practised. In a survey of INFECTIOUS BRONCHITIS, 188 premises were tested and, from the examination of pooled samples of serum, 166 or 88·29% were infected.

The diseases of animals occupy 26 pages and hold much of interest to the veterinarian. The prevalence of specific diseases is briefly discussed; also BRUCELLOSIS control, calfhood vaccination, warble fly and tick control and MASTITIS. Specimens examined by the Pathological Department during the year are listed.

—R. GWATKIN.

JAMAICA. (1953). **Annual Report of the Department of Agriculture for the year ended 31st December, 1952.** [WRIGHT, J.] pp. 41. Kingston: Govt. Printer. 3s. [Report of the Veterinary Division pp. 23-28.] **2228**

The diseases reported were ANTHRAX, BLACKLEG, TUBERCULOSIS and STERILITY of cattle due to BRUCELLOSIS, and also VIBRIO FETUS INFECTION, SWINE FEVER and SWINE ERYSIPELAS. It was stated that deaths from HAEMORRHAGIC SEPTICAEMIA occurred in a herd of goats.

So-called "FARCY" in horses was studied. The condition clinically resembles epizootic lymphangitis but *Histoplasma farciminosum* was not identified. Antibiotics were useful in treatment.

ANAPLASMOSIS was treated successfully with "PAA-701" [composition not given].

VERRUCA in cattle was investigated. There are two types of lesion, one fungating in form and the other flat; both are believed to be of virus origin. The latter type was transmitted by biting flies.—J. A. GRIFFITHS.

DÉOM, J. & MORTELMANS, J. (1954). Quelques données extraites du rapport annuel pour 1953 de la Section Diagnostic du Laboratoire Vétérinaire d'Elisabethville (Congo belge). [**Extracts from the annual report for 1953 of the Diagnostic Section of the Veterinary Laboratory at Elisabethville, Belgian Congo.**]—*Bull. Agric. Congo belge*. **45**, 1291-1306. [English and Flemish summaries.] **2229**

SALMONELLOSIS was diagnosed in cattle, pigs and poultry. *S. dublin, S. enteritidis* and *S. typhi-murium* caused heavy mortality among calves. Control measures included isolation, hygiene and vaccination. *S. typhi-murium*, was isolated from poultry and various rodents, notably the bush rat, *Cricetomys ansorgei*. It was also found in sheep. *Bacterium coli* infection of calves was common. Mixed polyvalent vaccines incorporating species of salmonella were used. *Chromobacterium prodigiosum* was isolated from the bone-marrow and organs of a horse which had died from septicaemia. The organism was pathogenic for laboratory animals. *Shigella sonnei* was isolated from the bone-marrow of a calf. *Streptococcus zooepidemicus* was identified as the causal organism of chronic SINUSITIS in a horse. JOHNE'S DISEASE was suspected, at meat inspection, in a calf from the Katanga breeding centre. It was confirmed by isolation of the causal organism from the lesions. Investigation revealed a high incidence among the Katanga cattle.

A serious outbreak of FOOT AND MOUTH DISEASE was caused by S.A.T.2 virus. Its spread was prevented by strict isolation, hygiene and veterinary police measures. RABIES was diagnosed in 13 dogs, 2 cats and 5 cattle. The demand for anti-rabies vaccine was on the increase. There was an outbreak of SWINE FEVER in Katanga caused, probably, by wild pigs. Isolation and slaughter of suspects prevented its spread. Twenty-two outbreaks of NEWCASTLE DISEASE occurred, but losses were low owing to vaccination.

Parasitic diseases included *Trichomonas gallinae* infection of pigeons and COCCIDIOSIS in various species of domestic animals including poultry and rabbits.

TAENIA INFESTATION was widespread and *Inermicapsifer congolense* was frequently identified in the intestines of the bush rat (*C. ansorgei*).—T. E. GATT RUTTER.

U.S.A. (1954). **Louisiana. Research in agriculture. Annual Report, 1952-53, Agricultural Experiment Station Louisiana State University and Agricultural and Mechanical College, Baton Rouge, Louisiana.** [TAGGART, W. G.] pp. 244. Baton Rouge, Louisiana: [Items of veterinary interest pp. 139-141.] **2230**

Study of non-infectious breeding disorders in 313 cows in artificially inseminated herds revealed that anoestrus is the main cause of failure to become pregnant; over half of the cows which failed to conceive became pregnant after corrective treatment. Studies on gastro-intestinal parasites of cattle revealed the importance of giving phenothiazine in the food rather than in a "salt lick". ANAPLASMOSIS was cured with aureomycin and also terramycin in the early stage of the disease.—J. A. GRIFFITHS.

BOOK REVIEWS

—. (1954). **Annual review of microbiology. Vol. VIII.** [Edited by: CLIFTON, C. E., RAFFEL, S. & STANIER, R. Y.] pp. 536. Stanford, Calif.: Annual Reviews, Inc.; (London: H. K. Lewis & Co., Ltd.). $7.00. **2231**

This volume contains 22 review articles on bacteria, protozoa, and viruses, the authors of which are authorities in their own particular fields. They cover literature published up to the end of 1953.

H. Schlossberger and H. Brandis review problems connected with leptospira, including classification, antigenic structure, definition of species, and leptospira infection in dogs and in other animals. They give a table showing the geographical distribution of species, and there are 191 references. A. E. Moore describes the effect of viruses on neoplasms: the viruses dealt with include those of fowl plague, foot and mouth disease, ectromelia, and rabies, and the neoplastic conditions include tumours in animals, and leucaemia and ascitic tumours in mice.

J. F. Enders gives an account of the cytopathology of virus infections, with particular reference to tissue culture studies. He mentions work done with the viruses of equine encephalomyelitis, fowl plague, Newcastle disease, ectromelia, equine abortion, canine virus hepatitis, Aujeszky's disease, psittacosis, and fowl pox. P. C. C. Garnham describes recent knowledge of the life cycle of malaria parasites, referring to *Plasmodium gallinaceum* and other avian species.

J. Oliver-González gives an account of the immunological properties of polysaccharides from animal parasites (chiefly *Ascaris lumbricoides, Trichinella spiralis, Echinococcus granulosus,* and *Taenia taeniaeformis*), and their application in diagnostic tests. Other reviews deal with the microbiology of dairy products, foods and feeding stuffs from fungi, antigenic variation of influenza viruses, labelled antigens and antibodies, non-specific factors in immunity, and the nutrition, metabolism, cytology, and toxins of bacteria.—R.M.

ANON. (1954). **Chemotherapy in the treatment of tuberculosis.** pp. 60. London: National Association for the Prevention of Tuberculosis (NAPT). 5s. **2232**

This small booklet contains 11 papers read at a post-graduate course for doctors held by the Tuberculosis Education Institute at Cambridge in September 1953. The papers deal with the position of chemotherapy in the treatment of tuberculosis in human beings, toxic reactions to antibiotics, the development of drug resistance, the histology of tuberculous lesions surgically removed from human beings after treatment, and methods and organization of chemotherapeutic treatment.—R.M.

IRVINE, K. N. (1954). **BCG and vole vaccination. A practical handbook.** pp. 96. London: National Association for the Prevention of Tuberculosis. 12s. 6d. **2233**

This small pocket-sized volume is intended mainly as a practical handbook for the use not only of medical men who are already using the vaccines, but for those who are as yet unacquainted with the technique of the vaccination and also for laymen employed by a health service who may also wish to acquire some knowledge of the subject. It deals clearly and effectively with the current practice of vaccination of human beings with B.C.G. and with the vole bacillus.

There are chapters on the history of both types of the bacillus, the theory of vaccination, tuberculin testing, the complications of vaccination and on organization. There are ten colour plates illustrating tuberculin reactions and reactions to B.C.G. vaccination at various stages; four figures illustrating apparatus, and a combined subject and author index. Each chapter is followed by a summary and a list of references to the literature. The book is well written and excellently printed on good quality paper and well bound.—A. B. PATERSON.

DREGUSS, M. N. [Associate Professor of Virology, University of Pennsylvania] & LOMBARD, L. S. [Research Associate in Pathology, University of Pennsylvania]. (1954). **Experimental studies in equine infectious anemia.** pp. 203. Philadelphia, Pa.: University of Pennsylvania Press; (London: Geoffrey Cumberlege, Oxford University Press). $6.50. **2234**

This monograph combines a comprehensive review of the literature on equine infectious anaemia with an account of the authors' own work, carried out at the School of Veterinary Medicine, University of Pennsylvania. The authors found that neither the complement-fixation test, precipitin test, erythrocyte sedimentation rate, albumin-globulin ratio of the serum, liver function tests, nor the chemical composition of the blood were specific diagnostic tests alone. Diagnosis could, however, be achieved by a combination of these tests and clinical and

haematological observations. The haemagglutination-inhibition test was a reliable aid to diagnosis.

The workers at Pennsylvania observed that hypersensitivity plays an important role in the course of the disease. Although they were unable to establish infection in monkeys, hamsters, guinea pigs, rabbits, or mice, they did succeed in passaging the virus through mice; during the course of passage its virulence for horses was reduced. The results of attempts to cultivate the virus in chick embryos were inconclusive. The virus, adsorbed on aluminium hydroxide and partially inactivated by formaldehyde, conferred only partial immunity in a horse, as judged by prolongation of the incubation period of the disease after challenge with virulent virus two months after vaccination. They described the *post mortem* findings in eighteen infected horses, and discussed control measures.

The weakest part is that dealing with the geographical distribution of equine infectious anaemia. For example, the statement that "there is no doubt that the disease is prevalent throughout the entire Eurasian continent" requires confirmation as the disease has never been diagnosed in India, Ceylon, Burma or Malaya. Nor is it present in Australia and New Zealand, although the authors state that the Dutch East Indies were infected from Australia. The absence of records from the above mentioned countries cannot be attributed to "lack of interest in the problem or, in the case of colonial territories and under-developed regions, to lack of competent investigators". In India during the British period there was no lack of interest in horses and their diseases and there were well-organized civil and military veterinary services. The same is true of Australia, New Zealand, Malaya, Burma, Ceylon and the Dutch East Indies.

Save for the chapter on geographical distribution of the disease, the book is a very valuable source of information on equine infectious anaemia. The bibliography contains 1,246 references which had been published up to the end of 1951.—R.M.

VIRAT-PILET, J. [Docteur Vétérinaire]. (1954). La myxomatose du lapin et du lièvre. **[Myxomatosis of rabbits and hares.]** pp. 85. [185 refs.] Paris: Vigot Frères. **2235**

This is the best review on the subject of myxomatosis in rabbits at present available. Its chapters deal with the following aspects of the disease:—history and epidemiology; symptoms; pathogenesis; properties of the virus; relationship between myxomatosis virus and the Shope fibroma virus; attenuation of the virus; immunology; control measures; treatment. Particular emphasis is placed on the outbreak which commenced in France in 1952, and there is a map showing the spread of the disease in France up to the beginning of 1954. There are three photographs of affected rabbits and two of specific lesions. The author concludes by summing up the economic and scientific problems of the disease.—R.M.

BORCHERT, A. [Direktor des Instituts für vet.-med. Parasitologie der Humboldt-Universität Berlin]. (1954). Lehrbuch der Parasitologie für Tierärzte. **[Textbook of veterinary parasitology.]** pp. xv+448. Leipzig: S. Hirzel. DM 30. **2236**

The purpose of this handy textbook was, it is stated in the preface, to fill an existing gap in the veterinary literature of the [East] German Democratic Republic.

Following an introductory chapter on parasitism in general, the subject matter is arranged in sections on helminth parasites, molluscs, arthropods and protozoan parasites, in that order. A useful feature is the chapters at the end of the book on measures for the prevention of parasitic infestation in byre, stable, sty, yard and on pasture. Methods of destruction of potential invertebrate vectors and carriers such as earthworms, snails, flies etc. are described as well as techniques of examination of faeces, urine, blood and skin.

There are illustrated lists of ova, oocysts and larvae present in faeces of horses, domestic ruminants, pigs, dogs, cats, rabbits and poultry.

Paper, print and binding are good and so are the 246 illustrations, most of which are line drawings. Over 500 references are listed and there is a subject index.—E.G.

—. (1954). **Veterinary necropsy procedures. [Sponsored by the Armed Forces Institute of Pathology and the American Veterinary Medical Association.]** [Edited by: JONES, T. C. & GLEISER, C. A.] pp. xiii+136. London: Sir Isaac Pitman & Sons Ltd. (Philadelphia, London & Montreal: J. B. Lippincott Co.) 50s. **2237**

This is probably the first major work in English on veterinary *post-mortem* technique since the book written by Crocker in 1918. It was prepared by the Committee on Registry of Veterinary Pathology of the American Veterinary Medical Association, and 12 authors have contributed material for it.

The book begins with an account of the importance and general principles of *post-mortem* examinations. There follow chapters

on the technique of *post-mortem* examination in horses, cattle, sheep, pigs, dogs, cats, fowls and other birds, laboratory animals, and wild animals. Finally there are chapters on how to prepare a *post-mortem* report, how to select and prepare material for laboratory examination, the collection and preservation of endoparasites and ectoparasites, and suggestions for facilitating the laboratory diagnosis of various diseases.

There are 50 illustrations, and the quality of the paper and print is excellent. The book should prove to be very useful for students and for veterinary surgeons in the field and in the laboratory.—R.M.

PAPANICOLAOU, G. N. [Clinical Professor of Anatomy Emeritus, Cornell University Medical College.]. (1954). **Atlas of exfoliative cytology.** pp. xvi+56, +plates and index pages. New York: Harvard University Press; (London: Geoffrey Cumberlege, Oxford University Press). 144s. **2238**

This is an account of the cytology of normal and neoplastic cells occurring in the excretions of the respiratory, digestive, and male and female urogenital systems, in peritoneal, pleural, and pericardial exudate, and in mammary gland secretion, in human beings.

One chapter is devoted to methods of obtaining material and the staining of smears, and another to an account of characteristics which distinguish normal from neoplastic cells. In the remaining chapters the normal and abnormal cytology of cells exfoliated from each of the body systems is described. Illustrations of the stained cells appear on 36 plates of superb quality. The book is presented in the form of a handsome loose-leaf binder, to enable the easy addition of fresh information, which the publishers intend to issue periodically as it becomes available.—R.M.

WHITE, M. J. D. [Division of Plant Industry, C.S.I.R.O. Canberra, Australia]. (1954). **Animal cytology and evolution.** pp. xiv+454. [147 figs.] London: Cambridge University Press. 2nd Edit. 45s. **2239**

This is a well produced and illustrated general textbook on nuclear cytology with chapters on chromosome structure; salivary gland chromosomes; the mechanism of structural rearrangement, chromosomal polymorphism in natural populations; the evolution of chromosome numbers and form; chromosomal rearrangements and speciation; the evolution of meiosis and the chromosome cycle; hybridization as a technique; the evolution of sex determination; sex determination by male haploidy; and the evolution of parthenogenesis. There is a bibliography covering 52 pages.—A.S.

—. (1954). **Glandular physiology and therapy. Prepared under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association.** pp. xx+611. Philadelphia, (London & Montreal): J. B. Lippincott Co. 5th Edit., completely revised and rewritten. 80s. **2240**

The fifth edition of this work provides an up-to-date treatise on endocrinology, containing 22 review articles, by authors well-known in their own particular field of work. A chapter is devoted to each of the hormone-producing organs and there are chapters on the following: —endocrinology of pregnancy and lactation; abnormalities in body weight and in sexual behaviour; endocrine treatment of neoplastic diseases; therapeutic use of cortisone and ACTH; aspects of behaviour and intelligence; common misconceptions in endocrine therapy; diagnostic aids in diseases of the endocrine system; the chemistry of hormones; modes of administration of hormones.

The main purpose of the book is to acquaint the doctor with recent advances in clinical endocrinology; many of the physiological and biochemical aspects are of direct application in mammalian endocrinology. The printing, paper, and binding are of the highest quality. —R.M.

LAING, J. A. [Senior Lecturer in Veterinary Medicine, University of Bristol]. (1955). **Fertility and infertility in the domestic animals. Aetiology, diagnosis and treatment. A textbook for veterinary surgeons and students of agricultural and veterinary science.** pp.xii+256. London: Baillière, Tindall & Cox. **35s.** **2241**

Of several recently-published books which the reviewer has seen on this subject this is the only one which has been written systematically from a study of the literature, and which is provided, chapter by chapter, with lists of references. It is also refreshing to see a substantial proportion of the book allocated to the problem in horses, a recognition of the continued economic importance of this species in many countries outside Great Britain. The illustrations are numerous and informative and the photomicrography is of a high standard.

In the reviewer's opinion insufficient stress is laid on the probability that complex causes may account for a large proportion of outbreaks

of herd infertility in cattle. There would appear to be some risk involved in ascribing certain outbreaks to any *one* of the aspects of infection, nutrition, management, and heredity. In particular, the statement that ovarian dysfunction is to be differentiated (p. 199) from the results of imperfect nutrition, is open to question, as is the recommendation of hormone administration as the mainstay in treating the condition.

As the book is intended for reference use by the general practitioner and student, it of necessity gives notice to a wide variety of conditions, some relatively unimportant economically. This method may reduce the book's value to the specialist who might wish for a more extended discussion of controversial issues.

The possibilities of rectal examination of the bovine genital organs as described seem unduly limited; they may presumably be taken as referring to the degree of competence attainable by an operator in general mixed (not dairy) practice. Omissions include the question of treatment of bulls affected with vibriosis, the pathogenic role of strains of pleuropneumonia-like organisms, and of moulds and *Actinomyces*. In considering infertility associated with copper deficiency the author does not mention that full reproductive efficiency has been observed in grossly copper-deficient herds.

Putting aside these minor defects the book is in all essentials a sound workmanlike production of indisputable scholarship.

—F. L. M. DAWSON.

WINTERS, L. M. [Professor of Animal Husbandry, University of Minnesota]. (1954). **Animal breeding.** pp. ix+420. New York: John Wiley & Sons, Inc.; (London: Chapman & Hall, Ltd.). 5th Edit. $5.75. (46s.) **2242**

This text on the breeding of farm animals, first published in 1925, has been rendered up-to-date by the re-writing of large sections, and by descriptions of current breeding experiments with sheep and pigs at the Department of Animal Husbandry of the University of Minnesota. The catalogue of lethal factors compiled by Lerner (1944) has been incorporated in the chapter on that subject. W. Rempel has contributed a chapter on selection and the effectiveness of selection, and J. N. Cummings has contributed a chapter on artificial insemination. It is a concise and stimulating introduction to animal breeding suitable for students and owners of livestock.—R.M.

BROWN, D. (1954). **Methods of surveying and measuring vegetation.** pp. xv+223. Farnham Royal: Commonwealth Agricultural Bureaux. Bulletin No. 42 of the Commonwealth Bureau of Pastures and Field Crops, Hurley, Berks. 35s. **2243**

This is an excellent book on the techniques by which grassland, shrub-grassland and dense shrub may be sampled and quantitatively studied. The author concerns herself particularly with the problems of pasture research, and chapters 14–17 will be of special interest to veterinary readers. These chapters cover, among other things, the determination of grazing capacity; methods of evaluating pastures in terms of their capacity to support stock; the management of grazing animals and sward; bioassay of oestrogens in pasture plants by use of mice; the comparison of grass-clipping methods with animal-production methods as measures of the total and effective yields of pasture; pasture-recording methods as used in Scandinavia and Germany, with a detailed description of the forms filled in by co-operating farmers, and the various units (fodder units, starch equivalent units, pasture-day units, and grassland production units) in which results may be expressed for research and lay purposes; the effects of grazing on the composition of pasture, and methods used to determine the utilization of pasture.

There is a valuable glossary of terms used in range and pasture research in English-speaking countries, and an extensive bibliography.

The style is consistently clear, the presentation and illustration exemplary, and the author's critical approach in comparing current research techniques especially stimulating.

—A.S.

WALKER, E. P. [Assistant Director, National Zoological Park, Smithsonian Institute, Washington, D.C.]. (1954). **The monkey book.** pp. 153. New York (& London): The Macmillan Co. $6.50 (45s. 6d.). **2244**

This is a pleasing general book on monkeys, written primarily for people who intend choosing one as a pet, and who need practical hints on the habits and characters of the more easily obtained species.

This does not, however, mean that the book is of no scientific interest: there are detailed instructions on the construction of suitable cages, correct heating, and diet, with suggestions on how to maintain cultures of mealworms, crickets and other acceptable foods. About 50 species of monkey are dealt with in the descriptive part of the book.—A.S.

BOOKS RECEIVED

BACQ, Z. M. & ALEXANDER, P. (1955). **Radiobiology symposium 1954.** (Symposium de radiobiologie.) **Proceedings of the Symposium held at Liège, August-September, 1954.** pp. xix+362. London: Butterworths Scientific Publications; (New York: Academic Press Inc.) 60s. [In English and French.]

BARER, R. (1953). **Lecture notes on the use of the microscope.** pp. vii+76. Oxford: Blackwell Scientific Publications; (Springfield, Ill.: Charles C. Thomas). 6s.

BONNET, H. & NÉVOT, A. (1955). Travaux pratiques de bactériologie. **[Practical bacteriology.]** pp. viii+210. Paris: Masson & Cie. 4th revised edit. Fr. 960.

GERMER, W. D. (1954). Viruserkrankungen des Menschen. Ein Lehrbuch der Klinik, Epidemiologie und Ätiologie der menschlichen Virosen. **[Virus diseases of man.]** pp. viii+190. Stuttgart: Georg Thieme. DM 30.

MAY, N. D. S. (1955). **The anatomy of the sheep. With instructions for its dissection.** pp. 167. Brisbane, Q.: The University of Queensland Press.

MORAND, P. (1955). Évolution des Sciences. No. 5. Aux confins de la vie. Perspectives sur la biologie des virus. **[Biology of viruses.]** pp. 167. Paris: Masson & Cie. Fr. 850.

PATTERSON, A. M. (1954). **A French-English dictionary for chemists.** pp. xiv+476. New York: John Wiley & Sons, Inc.; (London: Chapman & Hall, Ltd.). 2nd Edit. 52s.

RAVEN, C. P. (Translated by: DE RUITER, L.). (1954). **An outline of developmental physiology.** pp. vii+216. London: Pergamon Press Ltd.; New York: McGraw-Hill Book Co., Inc.). 17s. 6d.

WALTER, A. M. & HEILMEYER, L. (1954). Antibiotika-Fibel. Indikation und Anwendung der Chemotherapeutika und Antibiotika. **[Chemotherapeutics and antibiotics.]** pp. vii+813. Stuttgart: Georg Thieme. DM 79.

WEICHERT, C. K. (1954). **Representative chordates. A manual of comparative anatomy.** pp. vii+204. New York, (Toronto & London): McGraw-Hill Book Co., Inc. 26s. 6d.

—. (1955). **Cold injury. Transactions of the Third Conference, February 22, 23, 24 and 25, 1954, Fort Churchill, Manitoba, Canada.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: FERRER, M. I.] pp. 226. New York: Josiah Macy, Jr. Foundation. $4.50.

—. (1955). **Gestation. Transactions of the First Conference, March, 9, 10 and 11, 1954, Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: FLEXNER, L. B.] pp. 238. New York: Josiah Macy, Jr. Foundation. $5.00.

—. (1955). **Biochemistry and physiology of protozoa. Vol. II.** [Edited by: HUTNER, S. H. & LWOFF, A.] pp. xiii+388. New York: Academic Press Inc.; (London: Academic Books Ltd.). $9.00.

—. (1955). **Antibiotics annual 1954-1955. Proceedings of the Second Annual Symposium on Antibiotics.** [Edited by: WELCH, H. & MARTI-IBAÑEZ, F.] pp. ix+1154. New York: Medical Encyclopedia, Inc. $10.00.

—. (1953). **Biological transformations of starch and cellulose. A Symposium held at The London School of Hygiene and Tropical Medicine on 21 February, 1953.** [Organized and Edited by: WILLIAMS, R. T.] pp. 84. Cambridge: At the University Press. Biochemical Society Symposia No. 11. 10s. 6d.

—. (1954). **The chemical pathology of animal pigments. A Symposium held at The London School of Hygiene and Tropical Medicine on 20 February, 1954.** [Organized and Edited by: WILLIAMS, R. T.] pp. 84. Cambridge: At the University Press. Biochemical Society Symposia No. 12. 12s. 6d.

ZEETTI, R. & MARTINI, I. (1954). Disinfezione e disinfestazione in veterinaria. **[Disinfection and veterinary parasiticides.]** pp. xv+243. Teramo: Published under the auspices of " Veterinaria Italiana ".

ZINZIUS, J. (1954). Die Antibiotika und ihre Schattenseiten. **[Adverse effects of antibiotics.]** pp. 96. Stuttgart: Hippokrates-Verlag. DM 6.80.

—. (1955). **The techniques and significance of oestrogen determinations. Memoirs of the Society for Endocrinology No. 3.** [Edited by: ECKSTEIN, P. & ZUCKERMAN, S.] pp. 96. Cambridge: University Press. 18s.

ANON. (1954). **A handbook of laboratory animals. Prepared by the Institute of Animal Resources.** pp. v+77. Washington, D.C.: National Academy of Sciences - National Research Council. Publ. No. 317. $1.25.

—. (1954). Die BCG-Schutzimpfung. **[B.C.G. vaccination.]** [Edited by: GRIESBACH, R.] pp. xii+330. Stuttgart: Georg Thieme. DM 16.50.

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